

**Energy Savings Opportunity Survey
Energy Engineering Analysis Program (EEAP)
Fort Campbell, Kentucky**

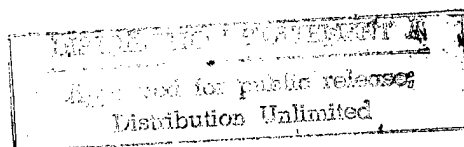
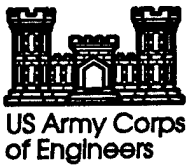
Final Report - Phase I

***Volume 2
Section 4 (continued)***

CONTRACT # DACA27-93-C-0096
SYSTEMS/CORP PROJECT # 93006
NOVEMBER 12, 1993

SYSTEMS*corp*

SYSTEMS ENGINEERING AND MANAGEMENT CORPORATION



FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 8204

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.5 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 22.4 LAMP @ 151.2 W/FXT = 3326.4 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 3.3

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 22.2 LAMP W/ REFLECTORS 58 W/FXT = 1276 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 1.9

NET ENERGY SAVINGS 16.4 MBTU/YR

NET DOLLAR SAVINGS \$391.27

19971017 174

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 2

31 AUGUST 1993

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3204

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE

2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS
0 LAMPS @ 52 WATTS =	0 WATTS
2 LAMPS @ 60 WATTS =	120 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS
0 LAMPS @ 90 WATTS =	0 WATTS
0 LAMPS @ 100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 120

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 9 WATTS =	0 WATTS
2 LAMPS @ 13 WATTS =	26 WATTS
0 LAMPS @ 18 WATTS =	0 WATTS
0 LAMPS @ 26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 26

NET ENERGY SAVINGS 0.25 MBTU/YR

NET DOLLAR SAVINGS \$1.55

Mon 30 Aug 1993

TITLE PAGE

U.S. ARMY CORPS of ENGINEERS M-CACES

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3204

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

DTIC QUALITY INSPECTED 2

M - C A C E S E D I T I O N
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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID:
4-106

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

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1. BUILDING TO THE 5 FOOT LINE	
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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3204
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:06:06

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING									
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)									
CD=3 EL 6105 SURF SQ W/1 13W BIAxIAL FL LAMP *** UNIT COSTS: ***				1.25	41.26	0.00	27.80	1.39	70.45
WC=1100 WHITE ACRYLIC LENS 2.00 EA EELEA				3	83	0	56	3	141
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***				0.59	19.42	0.08	136.00	6.80	162.29
WC=1100 REFLECTOR 22.00 EA EELEB				13	427	2	2,992	150	3,570
TOTAL DIVISION 16 ELECTRICAL				15	510	2	3,048	152	3,711
TOTAL FACILITY AA. ELECTRICAL				15	510	2	3,048	152	3,711
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				15	510	2	3,048	152	3,711
TOTAL BASE BID				15	510	2	3,048	152	3,711
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				15	510	2	3,048	152	3,711

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3204E5

4-108

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3204

TIME 12:06:00

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COS
AA	ELECTRICAL	1.00 EA	3,711	10.0% 371	0.0% 0	7.5% 306	2.5% 110	0.0% 0	4,498 4498.42
BID ITEM TOTAL	1.00 EA	3,711	371	0	306	110	0	4,498	4498.42
TOTAL BASE BID		3,711	371	0	306	110	0	4,498	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		3,711	371	0	306	110	0	4,498	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:04

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	4,498		4,498	4498.40
	TOTAL CURRENT CONTRACT COST			4,498	0	4,498	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			4,498	0	4,498	
	Government-Furnished Property			0		0	
	SUBTOTAL			4,498	0	4,498	
	Contingencies	10.0%		450	0	450	
	SUBTOTAL			4,948	0	4,948	
	SIOH (S&A)	5.0%		247	0	247	
	CURRENT WORKING ESTIMATE			5,196	0	5,196	
	Estimated Construction Time	365	Days				

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	15	510	2	3,200		3,711	100.0%	0	3,711
	TOTAL DIRECT				15	510	2	3,200		3,711	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3204E5

4-112

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		3,711	371	10.0%	0.0		306	7.5%	2.5%	0.0%		4,498	100.0%		4498.40
	TOTAL OVERHEAD & PROFIT			371	10.0%			306	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	15	510	2	3,048	152	3,711
TOTAL DIRECT	15	510	2	3,048	152	3,711

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3204E5
4-114

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:00

STEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	15	510	2	3,048	152	3,711
TOTAL DIRECT	15	510	2	3,048	152	3,711

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3204E5
4-115

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY	UPB	***** TOTAL *****	
									RATE	RATE	HOURS	COST
EMI20 SMALL TOOLS									1.40	1.40	1	2
TOTAL PROJECT EQUIPMENT HOURS											1	2

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3204E5

4-116

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3204

TIME 12:06:06

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	16	510
TOTAL PROJECT MANHOURS								16	510

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3206

BUILDING USE:

HOURS/DAY 14

DAYS/WEEK 7

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @	48 W/FXT =	0 WATTS
0 1 LAMP @	37.8 W/FXT =	0 WATTS
4 2 LAMP @	96 W/FXT =	384 WATTS
0 2 LAMP @	75.6 W/FXT =	0 WATTS
0 3 LAMP @	144 W/FXT =	0 WATTS
0 3 LAMP @	113.4 W/FXT =	0 WATTS
2 4 LAMP @	192 W/FXT =	384 WATTS
1 4 LAMP @	151.2 W/FXT =	151.2 WATTS

2 FOOT

0 1 LAMP @	31 W/FXT =	0 WATTS
0 4 LAMP @	88 W/FXT =	0 WATTS
0 2 LAMP U @	96 W/FXT =	0 WATTS
0 2 LAMP U @	75.6 W/FXT =	0 WATTS

8 FOOT

0 2 LAMP @	180 W/FXT =	0 WATTS
0 2 LAMP @	168 W/FXT =	0 WATTS

TOTAL EXISTING KW

0.9

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @	37 W/FXT =	0 WATTS
4 1 LAMP W/ REFLECTORS	37 W/FXT =	148 WATTS
0 2 LAMP W/ REFLECTORS	58 W/FXT =	0 WATTS
3 2 LAMP W/ REFLECTORS	58 W/FXT =	174 WATTS

2 FOOT

0 1 LAMP @	24 W/FXT =	0 WATTS
0 2 LAMP W/ REFLECTORS	41 W/FXT =	0 WATTS
0 2 LAMP U @	58 W/FXT =	0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS	58 W/FXT =	0 WATTS
------------------------	------------	---------

TOTAL REPLACEMENT KW

0.3

NET ENERGY SAVINGS 10.4 MBTU/YR

NET DOLLAR SAVINGS

\$148.76

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3206

LAMP USE:

HOURS/DAY

DAYS/WEEK

PEAK USE

6

7

1 (1 - YES, 2 - NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
0 LAMPS @	52 WATTS =	0 WATTS
0 LAMPS @	60 WATTS =	0 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
1 LAMPS @	90 WATTS =	90 WATTS
0 LAMPS @	100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 90

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
0 LAMPS @	13 WATTS =	0 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
1 LAMPS @	26 WATTS =	26 WATTS

TOTAL REPLACEMENT WATTS 26

NET ENERGY SAVINGS 0.47 MBTU/YR

NET DOLLAR SAVINGS \$12.00

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 12:12:59

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3206

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5
4-120

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:12:59

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6107	SURF SQ W/1 26W BIAXIAL FL LAMP *** UNIT COSTS: ***	1.25				41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS 1.00 EA EELEA	1				41	0	31	2	74
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.54				17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR 4.00 EA EELEB	2				71	0	488	24	584
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59				19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR 3.00 EA EELEB	2				58	0	408	20	487
TOTAL DIVISION 16 ELECTRICAL		5				171	1	927	46	1,145
TOTAL FACILITY AA. ELECTRICAL		5				171	1	927	46	1,145
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE		5				171	1	927	46	1,145
TOTAL BASE BID		5				171	1	927	46	1,145
TOTAL ADDITIVE		0				0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY		5				171	1	927	46	1,145

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5

4-122

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:5

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:56

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHR FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	1,145	10.0% 114	0.0% 0	7.5% 94	2.5% 34	0.0% 0	1,387	1387.50
BID ITEM TOTAL		1.00 EA	1,145	114	0	94	34	0	1,387	1387.50
TOTAL BASE BID			1,145	114	0	94	34	0	1,387	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			1,145	114	0	94	34	0	1,387	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	1,388		1,388	1387.50
TOTAL CURRENT CONTRACT COST				1,388	0	1,388	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				1,388	0	1,388	
Government-Furnished Property				0		0	
SUBTOTAL				1,388	0	1,388	
Contingencies		10.0%		139	0	139	
SUBTOTAL				1,526	0	1,526	
SIOH (S&A)		5.0%		76	0	76	
CURRENT WORKING ESTIMATE				1,603	0	1,603	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	5	171	1	973	1,145 100.0%	0	1,145
	TOTAL DIRECT				5	171	1	973	1,145 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5

4-126

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:56

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		1,145	114	10.0%	0.0		94	7.5%	2.5%	0.0%		1,388	100.0%		1387.50
	TOTAL OVERHEAD & PROFIT			114	10.0%			94	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	5	171	1	927	46	1,145
TOTAL DIRECT	5	171	1	927	46	1,145

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5
4-128

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	5	171	1	927	46	1,145
TOTAL DIRECT	5	171	1	927	46	1,145

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5
4-129

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	0	1
TOTAL PROJECT EQUIPMENT HOURS										0	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3206

TIME 12:12:59

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	5	171
TOTAL PROJECT MANHOURS								5	171

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3206E5

4-131

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 6: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3207

BUILDING USE:

HOURS/DAY 11

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FIXT = 0 WATTS
 0.2 LAMP @ 96 W/FIXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0.3 LAMP @ 144 W/FIXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FIXT = 0 WATTS
 27.4 LAMP @ 192 W/FIXT = 5184 WATTS
 0.4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS
 0.4 LAMP @ 88 W/FIXT = 0 WATTS
 0.2 LAMP U @ 96 W/FIXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS
 0.2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 5.2

NET ENERGY SAVINGS 35.3 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FIXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 27.2 LAMP W/ REFLECTORS 58 W/FIXT = 1566 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 1.6

NET DOLLAR SAVINGS \$730.19

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3207

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE 2 (1 - YES, 2 - NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS
5 LAMPS @ 52 WATTS =	260 WATTS
0 LAMPS @ 60 WATTS =	0 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS
0 LAMPS @ 90 WATTS =	0 WATTS
0 LAMPS @ 100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 260

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 9 WATTS =	0 WATTS
5 LAMPS @ 13 WATTS =	65 WATTS
0 LAMPS @ 18 WATTS =	0 WATTS
0 LAMPS @ 26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 65

NET ENERGY SAVINGS 0.51 MBTU/YR

NET DOLLAR SAVINGS \$3.22

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 12:19:47

FILE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3207

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5
4-134

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:41

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1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3207
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:19:47

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP *** UNIT COSTS: ***	1.25				41.26	0.00	27.80	1.39	70.45
WC=1100	WHITE ACRYLIC LENS	5.00	EA	EELEA	6	206	0	139	7	352
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59				19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	27.00	EA	EELEB	16	524	2	3,672	184	4,382
TOTAL DIVISION 16 ELECTRICAL		22				731	2	3,811	191	4,734
TOTAL FACILITY AA. ELECTRICAL		22				731	2	3,811	191	4,734
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE		22				731	2	3,811	191	4,734
TOTAL BASE BID		22				731	2	3,811	191	4,734
TOTAL ADDITIVE		0				0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY		22				731	2	3,811	191	4,734

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5

4-136

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3207

TIME 12:19:47

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	4,734	10.0% 473	0.0% 0	7.5% 391	2.5% 140	0.0% 0	5,738 5738.13
BID ITEM TOTAL		1.00 EA	4,734	473	0	391	140	0	5,738 5738.13
TOTAL BASE BID			4,734	473	0	391	140	0	5,738
TOTAL ADDITIVE			0	0	0	0	0	0	0
TOTAL INCL ADD			4,734	473	0	391	140	0	5,738

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5

4-138

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	5,738		5,738	5738.10
TOTAL CURRENT CONTRACT COST				5,738	0	5,738	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				5,738	0	5,738	
Government-Furnished Property				0		0	
SUBTOTAL				5,738	0	5,738	
Contingencies		10.0%		574	0	574	
SUBTOTAL				6,312	0	6,312	
SIOH (S&A)		5.0%		316	0	316	
CURRENT WORKING ESTIMATE				6,628	0	6,628	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	22	731	2	4,002	4,734	100.0%	0	4,734
	TOTAL DIRECT				22	731	2	4,002	4,734	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5

4-140

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFCT	**** PROFIT ****	AMOUNT	PCT	BOND	OTHER	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		4,734	473	10.0%	0.0		391	7.5%	2.5%	0.0%		5,738	100.0%		5738.10
	TOTAL OVERHEAD & PROFIT			473	10.0%			391	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5
4-141

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	22	731	2	3,811	191	4,734
TOTAL DIRECT	22	731	2	3,811	191	4,734

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5
4-142

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	22	731	2	3,811	191	4,734
TOTAL DIRECT	22	731	2	3,811	191	4,734

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5
4-143

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:47

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	2	2
TOTAL PROJECT EQUIPMENT HOURS										2	2

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3207

TIME 12:19:41

LABOR SUMMARY

SUMMARY PAGE 1

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY -- RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.00	24.00	7.49	0.00	32.91	25.79	22	730
TOTAL PROJECT MANHOURS								22	730

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3207E5
4-145

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3209

BUILDING USE:

HOURS/DAY 3
DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS
0.1 LAMP @ 37.8 W/FIXT = 0 WATTS
0.2 LAMP @ 96 W/FIXT = 0 WATTS
4.2 LAMP @ 75.6 W/FIXT = 302.4 WATTS
0.3 LAMP @ 144 W/FIXT = 0 WATTS
0.3 LAMP @ 113.4 W/FIXT = 0 WATTS
0.4 LAMP @ 192 W/FIXT = 0 WATTS
2.2 LAMP @ 151.2 W/FIXT = 332.6 WATTS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS
0.4 LAMP @ 88 W/FIXT = 0 WATTS
0.2 LAMP U @ 96 W/FIXT = 0 WATTS
0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS
0.2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 3.6

NET ENERGY SAVINGS 5.9 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
4.1 LAMP W/ REFLECTORS 37 W/FIXT = 148 WATTS
0.2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
2.2 LAMP W/ REFLECTORS 58 W/FIXT = 1276 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
0.2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 1.4

NET DOLLAR SAVINGS \$348.03

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3209

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE 2 (1 - YES, 2 - NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
0 LAMPS @	52 WATTS =	0 WATTS
3 LAMPS @	60 WATTS =	180 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
0 LAMPS @	100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 180

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
3 LAMPS @	13 WATTS =	39 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
0 LAMPS @	26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 39

NET ENERGY SAVINGS 0.37 MBTU/YR

NET DOLLAR SAVINGS \$2.32

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 12:26:43

LE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3209

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
4-148

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

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DETAILED ESTIMATE

DETAIL PAGE

1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

* * * END TABLE OF CONTENTS * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3209
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:26:43

DETAIL PAGE 1

MAILED ESTIMATE

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP	***	UNIT COSTS: ***	1.25	41.26	0.00	27.80	1.39	70.45	
WC=1100	WHITE ACRYLIC LENS	3.00	EA EELEA	4	124	0	83	4	211	
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01	
WC=1100	REFLECTOR	4.00	EA EELEB	2	71	0	488	24	584	
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29	
WC=1100	REFLECTOR	22.00	EA EELEB	13	427	2	2,992	150	3,570	
TOTAL DIVISION 16 ELECTRICAL					19	622	2	3,563	178	4,366
TOTAL FACILITY AA. ELECTRICAL					19	622	2	3,563	178	4,366
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					19	622	2	3,563	178	4,366
TOTAL BASE BID					19	622	2	3,563	178	4,366
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					19	622	2	3,563	178	4,366

* * * END OF DETAIL REPORT * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3209

TIME 12:26:43

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	4,366	10.0% 437	0.0% 0	7.5% 360	2.5% 129	0.0% 0	5,292 5291.71
BID ITEM TOTAL		1.00 EA	4,366	437	0	360	129	0	5,292 5291.71
TOTAL BASE BID			4,366	437	0	360	129	0	5,292
TOTAL ADDITIVE			0	0	0	0	0	0	0
TOTAL INCL ADD			4,366	437	0	360	129	0	5,292

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
 4-152

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:41

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	5,292		5,292	5291.70
	TOTAL CURRENT CONTRACT COST			5,292	0	5,292	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			5,292	0	5,292	
	Government-Furnished Property			0		0	
	SUBTOTAL			5,292	0	5,292	
	Contingencies	10.0%		529	0	529	
	SUBTOTAL			5,821	0	5,821	
	SIOH (S&A)	5.0%		291	0	291	
	CURRENT WORKING ESTIMATE			6,112	0	6,112	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
4-153

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:40

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT **	SUBCON	W/O&P	SUBTOTAL
										AMOUNT PCT			
AA	GENERAL/PRIME		1.00	EA	19	622	2	3,742		4,366 100.0%	0		4,366
	TOTAL DIRECT				19	622	2	3,742		4,366 100.0%			

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
4-154

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		4,366	437	10.0%	0.0		360	7.5%	2.5%	0.0%		5,292	100.0%		5291.70
	TOTAL OVERHEAD & PROFIT			437	10.0%			360	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	19	622	2	3,563	178	4,366
TOTAL DIRECT	19	622	2	3,563	178	4,366

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
4-156

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	19	622	2	3,563	178	4,366
TOTAL DIRECT	19	622	2	3,563	178	4,366

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3209E5
4-157

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST
ENI20 SMALL TOOLS									1.40	1.40	1	2
TOTAL PROJECT EQUIPMENT HOURS											1	2

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3209

TIME 12:26:43

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TYS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	19	622
TOTAL PROJECT MANHOURS								19	622

*** END OF SUMMARY REPORT ***

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3307

BUILDING USE:

HOURS/DAY 14

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 26.4 LAMP @ 151.2 W/FXT = 3931.2 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 86 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 3.9

NET ENERGY SAVINGS 30.1 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 26.2 LAMP W/ REFLECTORS 58 W/FXT = 1508 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 1.5

NET DOLLAR SAVINGS \$529.01

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 12:42:28

FILE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3307

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-161

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:23

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DETAILED ESTIMATE

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1. BUILDING TO THE 5 FOOT LINE	
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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 3307
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:42:28

MAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59			19.42	0.08	136.00	6.80	162.29	
WC=1100 REFLECTOR 26.00 EA EELEB	15			505	2	3,536	177	4,220	
TOTAL DIVISION 16 ELECTRICAL	15			505	2	3,536	177	4,220	
TOTAL FACILITY AA. ELECTRICAL	15			505	2	3,536	177	4,220	
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	15			505	2	3,536	177	4,220	
TOTAL BASE BID	15			505	2	3,536	177	4,220	
TOTAL ADDITIVE	0			0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	15			505	2	3,536	177	4,220	

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5

4-163

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	4,220	10.0% 422	0.0% 0	7.5% 348	2.5% 125	0.0% 0	5,114 5114.46
BID ITEM TOTAL	1.00 EA	4,220	422	0	348	125	0	5,114	5114.46
TOTAL BASE BID		4,220	422	0	348	125	0	5,114	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		4,220	422	0	348	125	0	5,114	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5

4-165

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	5,115		5,115	5114.50
	TOTAL CURRENT CONTRACT COST			5,115	0	5,115	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			5,115	0	5,115	
	Government-Furnished Property			0		0	
	SUBTOTAL			5,115	0	5,115	
	Contingencies	10.0%		511	0	511	
	SUBTOTAL			5,626	0	5,626	
	SIOH (S&A)	5.0%		281	0	281	
	CURRENT WORKING ESTIMATE			5,907	0	5,907	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-166

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

TRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	15	505	2	3,713		4,220	100.0%	0	4,220
	TOTAL DIRECT				15	505	2	3,713		4,220	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-167

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		4,220	422	10.0%	0.0		348	7.5%	2.5%	0.0%		5,114	100.0%		5114.46
	TOTAL OVERHEAD & PROFIT			422	10.0%			348	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-168

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:2

CSI DIVISION SUMMARY

SUMMARY PAGE

ID CSI DIVISION	MANHOOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	15	505	2	3,536	177	4,220
TOTAL DIRECT	15	505	2	3,536	177	4,220

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-169

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	15	505	2	3,536	177	4,220
TOTAL DIRECT	15	505	2	3,536	177	4,220

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-170

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:23

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	ERLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST
EMI20 SMALL TOOLS									1.40	1.40	1	1
TOTAL PROJECT EQUIPMENT HOURS											1	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3307

TIME 12:42:28

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	15	505
TOTAL PROJECT MANHOURS								15	505

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3307E5
4-172

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 9308

BUILDING USE:

HOURS/DAY 10

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 19.4 LAMP @ 151.2 W/FXT = 2872.8 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 2.9

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 19.2 LAMP W/ REFLECTORS 58 W/FXT = 1102 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 1.1

NET ENERGY SAVINGS 15.7 MBTU/YR

NET DOLLAR SAVINGS \$347.65

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3308
AREA: RESTROOM

AREA USE:
HOURS/DAY 3
DAYS/WEEK 5

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS
0.1 LAMP @ 37.8 W/FIXT = 0 WATTS
0.2 LAMP @ 96 W/FIXT = 0 WATTS
0.2 LAMP @ 75.6 W/FIXT = 0 WATTS
0.3 LAMP @ 144 W/FIXT = 0 WATTS
0.3 LAMP @ 113.4 W/FIXT = 0 WATTS
0.4 LAMP @ 192 W/FIXT = 0 WATTS
1.4 LAMP @ 151.2 W/FIXT = 151.2 WATTS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS
0.4 LAMP @ 88 W/FIXT = 0 WATTS
0.2 LAMP U @ 96 W/FIXT = 0 WATTS
0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS
0.2 LAMP @ 168 W/FIXT = 0 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
0.1 LAMP @ 37 W/FIXT = 0 WATTS
0.2 LAMP @ 58 W/FIXT = 0 WATTS
1.2 LAMP @ 58 W/FIXT = 58 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
0.2 LAMP @ 41 W/FIXT = 0 WATTS
0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.151

TOTAL REPLACEMENT KW 0.058

NET ENERGY SAVINGS 0.24 MBTU/YR

NET DOLLAR SAVINGS \$14.71

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 12:49:06

LE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 3308

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-175

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:04

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 12:49:04

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 PT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59			19.42	0.08	136.00	6.80	162.29	
WC=1100 REFLECTOR 19.00 EA EELEB	11			369	1	2,584	129	3,084	
TOTAL DIVISION 16 ELECTRICAL	11			369	1	2,584	129	3,084	
TOTAL FACILITY AA. ELECTRICAL	11			369	1	2,584	129	3,084	
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	11			369	1	2,584	129	3,084	
TOTAL BASE BID	11			369	1	2,584	129	3,084	
TOTAL ADDITIVE	0			0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	11			369	1	2,584	129	3,084	

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-177

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	3,084	10.0% 308	0.0% 0	7.5% 254	2.5% 91	0.0% 0	3,737	3737.49
BID ITEM TOTAL		1.00 EA	3,084	308	0	254	91	0	3,737	3737.49
TOTAL BASE BID			3,084	308	0	254	91	0	3,737	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			3,084	308	0	254	91	0	3,737	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-179

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

ECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00 EA	3,738		3,738	3737.50
	TOTAL CURRENT CONTRACT COST		3,738	0	3,738	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		3,738	0	3,738	
	Government-Furnished Property		0		0	
	SUBTOTAL		3,738	0	3,738	
	Contingencies	10.0%	374	0	374	
	SUBTOTAL		4,111	0	4,111	
	SIOH (S&A)	5.0%	206	0	206	
	CURRENT WORKING ESTIMATE		4,317	0	4,317	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

-----		*** OVERHEAD ***	-----		**** PROFIT ****	-----		***** TOTAL CONTRACT *****					
ID	CONTRACTOR	PM	SUBTOTAL	AMOUNT	PCT	HOFC%	AMOUNT	PCT	BOND%	OTHER%	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		3,084	308	10.0%	0.0	254	7.5%	2.5%	0.0%	3,737	100.0%	3737.49
				-----			-----						
				308	10.0%		254	7.5%					
			TOTAL OVERHEAD & PROFIT										

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-181

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OB&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	11	369	1	2,713		3,084	100.0%	0	3,084
	TOTAL DIRECT				11	369	1	2,713		3,084	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-182

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

I DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	11	369	1	2,584	129	3,084
TOTAL DIRECT	11	369	1	2,584	129	3,084

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5

4-183

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

ITEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	11	369	1	2,584	129	3,084
TOTAL DIRECT	11	369	1	2,584	129	3,084

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 3308E5
4-184

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:06

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST
EMI20 SMALL TOOLS								1.40	1.40	1	1
TOTAL PROJECT EQUIPMENT HOURS										1	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 3308

TIME 12:49:04

LABOR SUMMARY

SUMMARY PAGE

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	11	369
TOTAL PROJECT MANHOURS								11	369

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5212

BUILDING USE:

HOURS/DAY 8
DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT
0 1 LAMP @ 48 W/FIXT = 0 WATTS
0 1 LAMP @ 37.8 W/FIXT = 0 WATTS
7 2 LAMP @ 96 W/FIXT = 672 WATTS
1 2 LAMP @ 75.6 W/FIXT = 75.6 WATTS
0 3 LAMP @ 144 W/FIXT = 0 WATTS
0 3 LAMP @ 113.4 W/FIXT = 0 WATTS
2 4 LAMP @ 192 W/FIXT = 4608 WATTS
4 4 LAMP @ 151.2 W/FIXT = 604.8 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT
0 1 LAMP @ 37 W/FIXT = 0 WATTS
8 1 LAMP W/ REFLECTORS 37 W/FIXT = 296 WATTS
0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
28 2 LAMP W/ REFLECTORS 58 W/FIXT = 1624 WATTS

2 FOOT
0 1 LAMP @ 31 W/FIXT = 0 WATTS
0 4 LAMP @ 88 W/FIXT = 0 WATTS
0 2 LAMP U @ 96 W/FIXT = 0 WATTS
0 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

2 FOOT
0 1 LAMP @ 24 W/FIXT = 0 WATTS
0 2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT
0 2 LAMP @ 180 W/FIXT = 0 WATTS
10 2 LAMP @ 168 W/FIXT = 1680 WATTS

8 FOOT
10 1 LAMP W/ REFLECTORS 58 W/FIXT = 590 WATTS

TOTAL EXISTING KW 7.6

TOTAL REPLACEMENT KW 2.5

NET ENERGY SAVINGS 36.5 MBTU/YR

NET DOLLAR SAVINGS \$952.68

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:09:42

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 5212

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-188

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:41

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DETAILED ESTIMATE	DETAIL PAGE
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1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

* * * END TABLE OF CONTENTS * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 5212
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:09:42

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		8.00 EA EELEB		4	143		1	976	49	1,168
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100		28.00 EA EELEB		16	544		2	3,808	190	4,544
16512 8000 FLUORESCENT - SURFACE MOUNTED T8 ELECTRONIC BALLASTS										
CD=3 EL 8003	8 FT 1 LAMP W/ REFLECTOR	*** UNIT COSTS: ***			0.98	29.58	0.13	109.00	5.45	144.17
WC=1100		10.00 EA EELEF		10	296		1	1,090	55	1,442
TOTAL DIVISION 16 ELECTRICAL					31	982	4	5,874	294	7,154
TOTAL FACILITY AA. ELECTRICAL					31	982	4	5,874	294	7,154
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					31	982	4	5,874	294	7,154
TOTAL BASE BID					31	982	4	5,874	294	7,154
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					31	982	4	5,874	294	7,154

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
 4-190

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-191

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	7,154	715	0	590	211	0	8,671	8671.08
BID ITEM TOTAL		1.00 EA	7,154	715	0	590	211	0	8,671	8671.08
TOTAL BASE BID			7,154	715	0	590	211	0	8,671	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			7,154	715	0	590	211	0	8,671	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-192

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	8,671		8,671	8671.10
	TOTAL CURRENT CONTRACT COST			8,671	0	8,671	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			8,671	0	8,671	
	Government-Furnished Property			0		0	
	SUBTOTAL			8,671	0	8,671	
	Contingencies	10.0%		867	0	867	
	SUBTOTAL			9,538	0	9,538	
	SIOH (S&A)	5.0%		477	0	477	
	CURRENT WORKING ESTIMATE			10,015	0	10,015	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5

4-193

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:41

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT **	* SUBCON *	W/OH&P	SUBTOTAL
										AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	31	982	4	6,168		7,154	100.0%	0	7,154
	TOTAL DIRECT				31	982	4	6,168		7,154	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5

4-194

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD *** AMOUNT	PCT	HOFC%	**** PROFIT **** AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT ***** AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		7,154	715	10.0%	0.0	590	7.5%	2.5%	0.0%	8,671	100.0%	8671.09
	TOTAL OVERHEAD & PROFIT			715	10.0%		590	7.5%					

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:40

I DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	31	982	4	5,874	294	7,154
TOTAL DIRECT	31	982	4	5,874	294	7,154

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-196

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	31	982	4	5,874	294	7,154
TOTAL DIRECT	31	982	4	5,874	294	7,154

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-197

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:41

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSEP	OWNS	OVTM	OWNRSHP	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS									1.40	1.40	3	4
TOTAL PROJECT EQUIPMENT HOURS											3	4

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5212

TIME 13:09:42

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	31	983
TOTAL PROJECT MANHOURS								31	983

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5212E5
4-199

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 3

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5661

BUILDING USE:

HOURS/DAY 10

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 207 2 LAMP @ 96 W/FXT = 19872 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 64 4 LAMP @ 192 W/FXT = 12288 WATTS
 24 4 LAMP @ 151.2 W/FXT = 3628.8 WATTS

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 207 1 LAMP W/ REFLECTORS 7659 WATTS
 0.2 LAMP W/ REFLECTORS 0 WATTS
 88 2 LAMP W/ REFLECTORS 5104 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 22 4 LAMP @ 88 W/FXT = 1936 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 22 2 LAMP W/ REFLECTORS 902 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL EXISTING KW 37.7

TOTAL REPLACEMENT KW 13.7

NET ENERGY SAVINGS 213.4 MBTU/YR

NET DOLLAR SAVINGS \$4,723.52

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 3

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 5661

LAMP USE:

HOURS/DAY 5

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS
0 LAMPS @ 52 WATTS =	0 WATTS
34 LAMPS @ 60 WATTS =	2040 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS
0 LAMPS @ 90 WATTS =	0 WATTS
0 LAMPS @ 100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 2040

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 9 WATTS =	0 WATTS
34 LAMPS @ 13 WATTS =	442 WATTS
0 LAMPS @ 18 WATTS =	0 WATTS
0 LAMPS @ 26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 442

NET ENERGY SAVINGS 7.08 MBTU/YR

NET DOLLAR SAVINGS \$43.92

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 3 OF 3

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: 5661

EXIT SIGNS 7

CURRENT WATTAGE 40

REPLACEMENT WATTAGE 3

HOURS/YEAR 8760

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS

7.74 MBTU/YR

NET DOLLAR SAVINGS

\$84.58

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:16:10

FILE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 5661

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5
4-203

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

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1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 5661
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:16:10

TAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAxIAL FL LAMP	***	UNIT COSTS: ***	1.25	41.26	0.00	27.80	1.39	70.45	
WC=1100	WHITE ACRYLIC LENS	34.00	EA EELEA	43	1,403	0	945	47	2,395	
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01	
WC=1100	REFLECTOR	207.00	EA EELEB	112	3,694	14	25,254	1,263	30,225	
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29	
WC=1100	REFLECTOR	88.00	EA EELEB	52	1,709	7	11,968	598	14,282	
CD=3 EL 7005	2 FT 2 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.52	17.19	0.07	138.00	6.90	162.16	
WC=1100	REFLECTOR	22.00	EA EELEB	11	378	1	3,036	152	3,568	
16530 1100 SURFACE OR PENDANT MOUNTED										
CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	***	UNIT COSTS: ***	1.25	41.26	0.00	121.45	6.07	168.79	
WC=1100		7.00	EA EELEA	9	289	0	850	43	1,181	
TOTAL DIVISION 16 ELECTRICAL					226	7,472	23	42,053	2,103	51,651
TOTAL FACILITY AA. ELECTRICAL					226	7,472	23	42,053	2,103	51,651
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					226	7,472	23	42,053	2,103	51,651
TOTAL BASE BID					226	7,472	23	42,053	2,103	51,651
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					226	7,472	23	42,053	2,103	51,651

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5
4-205

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHR FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	51,651	10.0% 5,165	0.0% 0	7.5% 4,261	2.5% 1,527	0.0% 0	62,604	62604.16
BID ITEM TOTAL		1.00 EA	51,651	5,165	0	4,261	1,527	0	62,604	62604.16
TOTAL BASE BID			51,651	5,165	0	4,261	1,527	0	62,604	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			51,651	5,165	0	4,261	1,527	0	62,604	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661EE
4-207

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	62,604		62,604	62604.20
	TOTAL CURRENT CONTRACT COST			62,604	0	62,604	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			62,604	0	62,604	
	Government-Furnished Property			0		0	
	SUBTOTAL			62,604	0	62,604	
	Contingencies	10.0%		6,260	0	6,260	
	SUBTOTAL			68,865	0	68,865	
	SIOH (S&A)	5.0%		3,443	0	3,443	
	CURRENT WORKING ESTIMATE			72,308	0	72,308	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5

4-208

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	226	7,472	23	44,156	51,651	100.0%	0	51,651
	TOTAL DIRECT				226	7,472	23	44,156	51,651	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5
4-209

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		51,651	5,165	10.0%	0.0		4,261	7.5%	2.5%	0.0%		62,604	100.0%		62604.14
	TOTAL OVERHEAD & PROFIT			5,165	10.0%			4,261	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:1

CSI DIVISION SUMMARY

SUMMARY PAGE

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	226	7,472	23	42,053	2,103	51,651
TOTAL DIRECT	226	7,472	23	42,053	2,103	51,651

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5

4-211

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	226	7,472	23	42,053	2,103	51,651
TOTAL DIRECT	226	7,472	23	42,053	2,103	51,651

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5
4-212

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	UPB	HOURS	TOTAL	COST
EMI20 SMALL TOOLS								1.40	1.40	16		23
TOTAL PROJECT EQUIPMENT HOURS										16		23

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5661

TIME 13:16:10

BOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	226	7,473
TOTAL PROJECT MANHOURS								226	7,473

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5661E5

4-214

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 4

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5702

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 7

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

2 1 LAMP @ 48 W/FIXT = 96 WATTS
 0 1 LAMP @ 37.8 W/FIXT = 0 WATTS
 2 2 LAMP @ 96 W/FIXT = 192 WATTS
 0 2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0 3 LAMP @ 144 W/FIXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FIXT = 0 WATTS
 0 4 LAMP @ 192 W/FIXT = 0 WATTS
 28 4 LAMP @ 151.2 W/FIXT = 4233.6 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

2 1 LAMP @ 37 W/FIXT = 74 WATTS
 2 1 LAMP W/ REFLECTORS 37 W/FIXT = 74 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 28 2 LAMP W/ REFLECTORS 58 W/FIXT = 1624 WATTS

2 FOOT

0 1 LAMP @ 31 W/FIXT = 0 WATTS
 0 4 LAMP @ 88 W/FIXT = 0 WATTS
 0 2 LAMP U @ 96 W/FIXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FIXT = 0 WATTS
 0 2 LAMP @ 168 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL EXISTING KW 4.5

TOTAL REPLACEMENT KW 1.8

NET ENERGY SAVINGS 30.7 MBTU/YR

NET DOLLAR SAVINGS \$579.11

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 4

31 AUGUST 1993

OCCUPANCY SENSOR UTILIZATION AFTER LIGHTING RETROFIT

BUILDING #: 5702
 AREA: RESTROOMS
 # OF SENSORS: 2
 HR/DAY 9
 DAY/WEEK 7
 EST HR IN USE/DAY 4.5
 WATTS 189
 ENERGY SAVINGS 310 KWH

ELECTRIC COSTS:
 ENERGY CHARGE \$0.0211 PER KWH
 DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS 1.06 MBTU/YR NET DOLLAR SAVINGS \$6.54

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 3 OF 4

31 AUGUST 1993

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 5702

LAMP USE:

HOURS/DAY 9

DAYS/WEEK 7

PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING INCANDESCENTS

2 LAMPS @	25 WATTS =	50 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
0 LAMPS @	52 WATTS =	0 WATTS
6 LAMPS @	60 WATTS =	360 WATTS
8 LAMPS @	75 WATTS =	600 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
9 LAMPS @	100 WATTS =	900 WATTS

TOTAL EXISTING WATTS 1910

COMPACT FLUORESCENT REPLACEMENT

2 LAMPS @	7 WATTS =	14 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
6 LAMPS @	19 WATTS =	78 WATTS
8 LAMPS @	18 WATTS =	144 WATTS
9 LAMPS @	26 WATTS =	234 WATTS

TOTAL REPLACEMENT WATTS 470

NET ENERGY SAVINGS 16.0 MBTU/YR

NET DOLLAR SAVINGS \$303.29

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 4 OF 4

EXIT SIGN REPLACEMENT -- INCANDESCENT TO LED

BUILDING #: 5702

EXIT SIGNS

1

CURRENT WATTAGE

40

REPLACEMENT WATTAGE

3

HOURS/YEAR

8760

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS

1.10 MBTU/YR

NET DOLLAR SAVINGS

\$12.08

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:26:35

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 5702

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-219

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

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DETAILED ESTIMATE

DETAIL PAGE

1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 5702
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:26:35

TAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL

QUANTITY UOM CREW

MANHR

LABOR

EQUIPMENT

MATERIAL

SALESTY

DIRECT \$

16500 LIGHTING

16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)

CD=3 EL 6103	SURF SQ W/ 1 7W BIAXIAL FL LAMP	*** UNIT COSTS: ***	1.25	41.26	0.00	27.30	1.37	69.93
WC=1100	WHITE ACRYLIC LENS	2.00 EA EELEA	3	83	0	55	3	140

CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP	*** UNIT COSTS: ***	1.25	41.26	0.00	27.80	1.39	70.45
WC=1100	WHITE ACRYLIC LENS	6.00 EA EELEA	8	248	0	167	8	423

CD=3 EL 6106	SURF SQ W/1 18W BIAXIAL FL LAMP	*** UNIT COSTS: ***	1.25	41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS	8.00 EA EELEA	10	330	0	248	12	591

CD=3 EL 6107	SURF SQ W/1 26W BIAXIAL FL LAMP	*** UNIT COSTS: ***	1.25	41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS	9.00 EA EELEA	11	371	0	279	14	664

16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST

CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	2.00 EA EELEB	1	36	0	244	12	292

CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	28.00 EA EELEB	16	544	2	3,808	190	4,544

16530 1100 SURFACE OR PENDANT MOUNTED

CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	*** UNIT COSTS: ***	1.25	41.26	0.00	121.45	6.07	168.79
WC=1100		1.00 EA EELEA	1	41	0	121	6	169

16900 CONTROLS AND INSTRUMENTATION

16930 3000 OCCUPANCY SENSORS

CD=3 EL 3001	OCCUPANCY SENSOR, 1800 W MAX	*** UNIT COSTS: ***	0.50	16.51	0.06	48.00	2.40	66.97
WC=1100		2.00 EA EELEB	1	33	0	96	5	134

TOTAL DIVISION 16 ELECTRICAL

51	1,685	2	5,018	251	6,956
----	-------	---	-------	-----	-------

TOTAL FACILITY AA. ELECTRICAL

51	1,685	2	5,018	251	6,956
----	-------	---	-------	-----	-------

TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE

51	1,685	2	5,018	251	6,956
----	-------	---	-------	-----	-------

TOTAL BASE BID

51	1,685	2	5,018	251	6,956
----	-------	---	-------	-----	-------

TOTAL ADDITIVE

0	0	0	0	0	0
---	---	---	---	---	---

CREW ID: ORL290

CURRENCY in DOLLARS

 PROJECT ID: 5702E5
 4-221

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:26:35

TAILED ESTIMATE

DETAIL PAGE 2

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				51	1,685	2	5,018	251	6,956

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-222

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

JECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-223

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	6,956	696	0	574	206	0	8,432	8431.56
BID ITEM TOTAL	1.00 EA	6,956	696	0	574	206	0	8,432	8431.56
TOTAL BASE BID		6,956	696	0	574	206	0	8,432	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		6,956	696	0	574	206	0	8,432	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702EE
4-224

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	8,432		8,432	8431.60
TOTAL CURRENT CONTRACT COST				8,432	0	8,432	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				8,432	0	8,432	
Government-Furnished Property				0		0	
SUBTOTAL				8,432	0	8,432	
Contingencies		10.0%		843	0	843	
SUBTOTAL				9,275	0	9,275	
SIOH (S&A)		5.0%		464	0	464	
CURRENT WORKING ESTIMATE				9,738	0	9,738	

Estimated Construction Time

365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-225

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	51	1,685	2	5,269		6,956 100.0%	0	6,956
	TOTAL DIRECT				51	1,685	2	5,269		6,956 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-226

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:39

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		6,956	696	10.0%	0.0		574	7.5%	2.5%	0.0%		8,432	100.0%		8431.53
	TOTAL OVERHEAD & PROFIT			696	10.0%			574	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E
4-227

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	51	1,685	2	5,018	251	6,956
TOTAL DIRECT	51	1,685	2	5,018	251	6,956

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	51	1,685	2	5,018	251	6,956
TOTAL DIRECT	51	1,685	2	5,018	251	6,956

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-229

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS									1.40	1.40	2	2
TOTAL PROJECT EQUIPMENT HOURS											2	2

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5702

TIME 13:26:35

BOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	51	1,685
TOTAL PROJECT MANHOURS								51	1,685

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5702E5
4-231

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE LIGHTING REPLACEMENT

BUILDING #: 5207

BUILDING USE: _____

HOURS/DAY: 10

DAYS/WEEK: 6

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT FLUORESCENT

59 2 LAMP @ 96 W/FIXT = 5664 WATTS

15 2 LAMP @ 75.6 W/FIXT = 1134 WATTS

48 4 LAMP @ 192 W/FIXT = 9216 WATTS

141 4 LAMP @ 151.2 W/FIXT = 21319.2 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT FLUORESCENT

74 1 LAMP W/ 37 W/FIXT = 2738 WATTS

REFLECTORS

189 2 LAMP W/ 58 W/FIXT = 10962 WATTS

REFLECTORS

8 FOOT FLUORESCENT

67 2 LAMP @ 168 W/FIXT = 11256 WATTS

REFLECTORS

8 FOOT FLUORESCENT

67 1 LAMP W/ 58 W/FIXT = 3896 WATTS

REFLECTORS

INCANDESCENT

391 LAMPS @ 300 WATTS = 117300 WATTS

HIGH PRESSURE SODIUM

391 HPS LAMP @ 130 W/FIXT = 50830 WATTS

MERCURY VAPOR

HIGH PRESSURE SODIUM

25 LAMPS @ 210 W/FIXT = 5250 WATTS

TOTAL EXISTING KW 171.1

TOTAL REPLACEMENT KW 71.7

NET ENERGY SAVINGS 1058.9 MBTU/YR

NET DOLLAR SAVINGS \$20,622.47

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 2

31 AUGUST 1993

INCANDESCENT LAMP REPLACEMENT

BUILDING #: 5207
AREA: HALLWAY

LAMP USE:

HOURS/DAY 10
DAYS/WEEK 6
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING INCANDESCENTS

LAMPS @	25	WATTS =	0	WATTS
LAMPS @	40	WATTS =	0	WATTS
9 LAMPS @	52	WATTS =	468	WATTS
LAMPS @	60	WATTS =	0	WATTS
LAMPS @	75	WATTS =	0	WATTS
LAMPS @	90	WATTS =	0	WATTS
LAMPS @	100	WATTS =	0	WATTS

TOTAL EXISTING WATTS 468

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7	WATTS =	0	WATTS
0 LAMPS @	9	WATTS =	0	WATTS
9 LAMPS @	13	WATTS =	117	WATTS
0 LAMPS @	18	WATTS =	0	WATTS
0 LAMPS @	26	WATTS =	0	WATTS

TOTAL REPLACEMENT WATTS 117

NET ENERGY SAVINGS 3.7 MBTU/YR

NET DOLLAR SAVINGS \$72.77

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:02:25

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 5207

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5

4-234

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:02:25

FILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	DOM CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16050 BASIC MATERIALS AND METHODS								
16111 1100 RIGID GALVANIZED STEEL CONDUIT								
CD=4 EL 1121 1 IN CONDUIT W/COUPLING	*** UNIT COSTS: ***		0.08	2.34	0.01	0.90	0.05	3.30
WC=1100	1500.00 LF EELEF		117	3,513	16	1,350	68	4,946
CD=4 EL 1125 1 IN THREE HUB CONDUIT BODIES	*** UNIT COSTS: ***		1.19	36.03	0.16	9.14	0.46	45.79
WC=1100	50.00 EA EELEF		60	1,802	8	457	23	2,290
16120 1700 600 VOLT FEEDER WIRE, SINGLE STR COPPER CONDUCTOR, PULLED IN COND								
CD=4 EL 1701 NO 14-TYPE THWN	*** UNIT COSTS: ***		4.01	120.88	0.54	37.20	1.86	160.48
WC=1100	16.50 MLP EELEF		66	1,995	9	614	31	2,648
16500 LIGHTING								
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)								
CD=3 EL 6105 SURF SQ W/1 13W BIAXIAL FL LAMP	*** UNIT COSTS: ***		1.25	41.26	0.00	27.80	1.39	70.45
WC=1100	9.00 EA EELEA		11	371	0	250	13	634
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST								
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***		0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	189.00 EA EELEB		111	3,670	14	25,704	1,285	30,673
16512 8000 FLUORESCENT - SURFACE MOUNTED T8 ELECTRONIC BALLASTS								
CD=3 EL 8001 4 FT 1 LAMP W/ REFLECTOR	*** UNIT COSTS: ***		0.91	27.42	0.12	78.25	3.91	109.71
WC=1100	74.00 EA EELEF		67	2,029	9	5,791	290	8,118
CD=3 EL 8003 8 FT 1 LAMP W/ REFLECTOR	*** UNIT COSTS: ***		0.98	29.58	0.13	109.00	5.45	144.17
WC=1100	67.00 EA EELEF		66	1,982	9	7,303	365	9,659
16512 9000 HIGH INTENSITY DISCHARGE								
CD=3 EL 9001 100 W HPS FIXTURE AND LAMP	*** UNIT COSTS: ***		0.93	28.11	0.13	178.00	8.90	215.13
WC=1100	416.00 EA EELEF		388	11,692	52	74,048	3,702	89,495
TOTAL DIVISION 16 ELECTRICAL			886	27,054	118	115,517	5,776	148,463
TOTAL FACILITY AA. ELECTRICAL			886	27,054	118	115,517	5,776	148,463
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE			886	27,054	118	115,517	5,776	148,463

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5

4-236

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:02:25

TAILED ESTIMATE

DETAIL PAGE 2

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
TOTAL BASE BID				886	27,054	118	115,517	5,776	148,463
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				886	27,054	118	115,517	5,776	148,463

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5

4-237

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-238

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:21

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHR FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	148,463	14,846	0	12,248	4,389	0	179,947	179947.03
BID ITEM TOTAL		1.00 EA	148,463	14,846	0	12,248	4,389	0	179,947	179947.03
TOTAL BASE BID			148,463	14,846	0	12,248	4,389	0	179,947	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			148,463	14,846	0	12,248	4,389	0	179,947	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-239

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVEY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	179,947		179,947	179947.00
TOTAL CURRENT CONTRACT COST				179,947	0	179,947	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000				0.0%	0	0	0
ESCALATED CONTRACT COST				179,947	0	179,947	
Government-Furnished Property				0		0	
SUBTOTAL				179,947	0	179,947	
Contingencies				10.0%	17,995	0	17,995
SUBTOTAL				197,942	0	197,942	
SIOH (S&A)				5.0%	9,897	0	9,897
CURRENT WORKING ESTIMATE				207,839	0	207,839	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT *	** SUBCON *	W/OH&P	SUBTOTAL
										AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	886	27,054	118	121,292		148,463	100.0%	0	148,463
	TOTAL DIRECT				886	27,054	118	121,292		148,463	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-241

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:21

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PK	SUBTOTAL	AMOUNT	PCT	HOFC%	AMOUNT	PCT	BOND%	OTHR%	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		148,463	14,846	10.0%	0.0	12,248	7.5%	2.5%	0.0%	179,947	100.0%	179947.01
	TOTAL OVERHEAD & PROFIT			14,846	10.0%		12,248	7.5%					

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-242

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	886	27,054	118	115,517	5,776	148,463
TOTAL DIRECT	886	27,054	118	115,517	5,776	148,463

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-243

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	886	27,054	118	115,517	5,776	148,463
TOTAL DIRECT	886	27,054	118	115,517	5,776	148,463

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-244

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

EQUIPMENT SUMMARY

SUMMARY PAGE 8

----- *** BOOK VALUE *** ADJ FACTOR ADJUSTD BOOK OP -- HRLY --- UPB **** TOTAL ****													
EQUIP	DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST

EMI20	SMALL TOOLS									1.40	1.40	84	117
												-----	-----
TOTAL PROJECT EQUIPMENT HOURS												84	117

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5207

TIME 13:02:25

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	886	27,054
TOTAL PROJECT MANHOURS								886	27,054

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5207E5
4-246

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 3

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5740
AREA: COMP/PROJECTION ROOM

AREA USE: _____
HOURS/DAY: 10
DAYS/WEEK: 5
ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 LAMP @ 48 W/FIXT = 0 WATTS
1 LAMP @ 37.8 W/FIXT = 0 WATTS
2 LAMP @ 96 W/FIXT = 0 WATTS
2 LAMP @ 75.6 W/FIXT = 0 WATTS
3 LAMP @ 144 W/FIXT = 0 WATTS
3 LAMP @ 113.4 W/FIXT = 0 WATTS
4 LAMP @ 192 W/FIXT = 0 WATTS
4 LAMP @ 146.4 W/FIXT = 585.6 WATTS

2 FOOT

1 LAMP @ 31 W/FIXT = 0 WATTS
4 LAMP @ 88 W/FIXT = 0 WATTS
2 LAMP U @ 96 W/FIXT = 0 WATTS
2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

2 LAMP @ 180 W/FIXT = 0 WATTS
2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.585

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 2 LAMP @ 56 W/FIXT = 0 WATTS
4 2 LAMP @ 58 W/FIXT = 232 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
0 2 LAMP @ 41 W/FIXT = 0 WATTS
0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.232

NET ENERGY SAVINGS 3.13 MBTU/YR

NET DOLLAR SAVINGS \$69.42

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 3

31 AUGUST 1993

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5740
AREA: OFFICE

AREA USE:
HOURS/DAY 10
DAYS/WEEK 5

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 LAMP @ 48 W/FIXT = 0 WATTS
1 LAMP @ 37.8 W/FIXT = 0 WATTS
2 LAMP @ 96 W/FIXT = 0 WATTS
2 LAMP @ 75.6 W/FIXT = 0 WATTS
3 LAMP @ 144 W/FIXT = 0 WATTS
3 LAMP @ 113.4 W/FIXT = 0 WATTS
4 LAMP @ 192 W/FIXT = 0 WATTS
4 LAMP @ 146.4 W/FIXT = 585.6 WATTS

2 FOOT

1 LAMP @ 31 W/FIXT = 0 WATTS
4 LAMP @ 88 W/FIXT = 0 WATTS
2 LAMP U @ 96 W/FIXT = 0 WATTS
2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

2 LAMP @ 180 W/FIXT = 0 WATTS
2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.585

NET ENERGY SAVINGS 3.13 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
0.1 LAMP @ 37 W/FIXT = 0 WATTS
0.2 LAMP @ 58 W/FIXT = 0 WATTS
4.2 LAMP @ 58 W/FIXT = 232 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
0.2 LAMP @ 41 W/FIXT = 0 WATTS
0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.232

NET DOLLAR SAVINGS \$69.42

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 6: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 3 OF 3

31 AUGUST 1993

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 5740
 AREA: WORKSTATIONS (4 SEPARATE ROOMS)
 AREA USE:
 HOURS/DAY 10
 DAYS/WEEK 5

ELECTRIC COSTS:
 ENERGY CHARGE \$0.0211 PER KWH
 DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT
 1 LAMP @ 48 W/FIXT = 0 WATTS
 1 LAMP @ 37.8 W/FIXT = 0 WATTS
 2 LAMP @ 96 W/FIXT = 0 WATTS
 2 LAMP @ 75.6 W/FIXT = 0 WATTS
 3 LAMP @ 144 W/FIXT = 0 WATTS
 3 LAMP @ 113.4 W/FIXT = 0 WATTS
 4 LAMP @ 192 W/FIXT = 0 WATTS
 12 4 LAMP @ 146.4 W/FIXT = 1756 WATTS

2 FOOT
 1 LAMP @ 31 W/FIXT = 0 WATTS
 4 LAMP @ 88 W/FIXT = 0 WATTS
 2 LAMP U @ 96 W/FIXT = 0 WATTS
 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT
 2 LAMP @ 180 W/FIXT = 0 WATTS
 2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 1.76

NET ENERGY SAVINGS 9.41 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT
 0 1 LAMP @ 37 W/FIXT = 0 WATTS
 0 1 LAMP @ 37 W/FIXT = 0 WATTS
 0 2 LAMP @ 58 W/FIXT = 0 WATTS
 12 2 LAMP @ 58 W/FIXT = 696 WATTS

2 FOOT
 0 1 LAMP @ 24 W/FIXT = 0 WATTS
 0 2 LAMP @ 41 W/FIXT = 0 WATTS
 0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT
 0 1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.70

NET DOLLAR SAVINGS \$208.26

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:33:39

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 5740

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5740E5
4-250

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

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U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:33:39

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7008 4 FT 2 LAMP PARABOLIC LOUVRE	***	UNIT COSTS: ***		0.50	16.51	0.06	120.00	6.00	142.57
WC=1100		20.00 EA EELEB		10	330	1	2,400	120	2,851
TOTAL DIVISION 16 ELECTRICAL				10	330	1	2,400	120	2,851
TOTAL FACILITY AA. ELECTRICAL				10	330	1	2,400	120	2,851
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				10	330	1	2,400	120	2,851
TOTAL BASE BID				10	330	1	2,400	120	2,851
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				10	330	1	2,400	120	2,851

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5740E5
4-252

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:39

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:39

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL								
	1.00 EA	2,851	10.0% 285	0.0% 0	7.5% 235	2.5% 84	0.0% 0	3,456	3456.06
BID ITEM TOTAL	1.00 EA	2,851	285	0	235	84	0	3,456	3456.06
TOTAL BASE BID		2,851	285	0	235	84	0	3,456	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		2,851	285	0	235	84	0	3,456	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5740E5
4-254

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:39

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	3,456		3,456	3456.10
TOTAL CURRENT CONTRACT COST				3,456	0	3,456	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				3,456	0	3,456	
Government-Furnished Property				0		0	
SUBTOTAL				3,456	0	3,456	
Contingencies		10.0%		346	0	346	
SUBTOTAL				3,802	0	3,802	
SIOH (S&A)		5.0%		190	0	190	
CURRENT WORKING ESTIMATE				3,992	0	3,992	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:39

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT *	** SUBCON *	
									AMOUNT	PCT	W/OH&P
											SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	10	330	1	2,520	2,851	100.0%	0
	TOTAL DIRECT				10	330	1	2,520	2,851	100.0%	2,851

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:3

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC	**** PROFIT ****	AMOUNT	PCT	BOND	OTHER	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT	COST
AA	GENERAL/PRIME		2,851	285	10.0%	0.0		235	7.5%	2.5%	0.0%		3,456	100.0%		3456.0	
	TOTAL OVERHEAD & PROFIT			285	10.0%			235	7.5%								

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:30

CSI DIVISION SUMMARY

SUMMARY PAGE 1

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	10	330	1	2,400	120	2,851
TOTAL DIRECT	10	330	1	2,400	120	2,851

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:39

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	10	330	1	2,400	120	2,851
TOTAL DIRECT	10	330	1	2,400	120	2,851

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5740E5

4-259

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:3

EQUIPMENT SUMMARY

SUMMARY PAGE

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	**** TOTAL HOURS	**** COST
EMI20 SMALL TOOLS								1.40	1.40	1	
TOTAL PROJECT EQUIPMENT HOURS										1	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 5740

TIME 13:33:36

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	10	330
TOTAL PROJECT MANHOURS								10	330

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 5740E5
4-261

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 1

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6087

BUILDING USE:

HOURS/DAY 24

DAYS/WEEK 7

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 1 LAMP @ 48 W/FIXT = 48 WATTS
 0 1 LAMP @ 37.8 W/FIXT = 0 WATTS
 52 2 LAMP @ 96 W/FIXT = 4992 WATTS
 0 2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0 3 LAMP @ 144 W/FIXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FIXT = 0 WATTS
 84 4 LAMP @ 192 W/FIXT = 16128 WATTS
 0 4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 31 W/FIXT = 0 WATTS
 0 4 LAMP @ 88 W/FIXT = 0 WATTS
 0 2 LAMP U @ 96 W/FIXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FIXT = 0 WATTS
 22 2 LAMP @ 168 W/FIXT = 3696 WATTS

TOTAL EXISTING KW 24.9

REPLACEMENT FIXTURE DATA

4 FOOT

1 1 LAMP @ 37 W/FIXT = 37 WATTS
 52 1 LAMP W/ REFLECTORS 37 W/FIXT = 1924 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 84 2 LAMP W/ REFLECTORS 58 W/FIXT = 4872 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

22 1 LAMP W/ REFLECTORS 58 W/FIXT = 1276 WATTS

TOTAL REPLACEMENT KW 8.1

NET ENERGY SAVINGS 499.4 MBTU/YR

NET DOLLAR SAVINGS \$5,462.78

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:40:1

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6087

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5
4-263

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

*** END TABLE OF CONTENTS ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:40:10

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	DOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7001 4 FT 1 LAMP PARABOLIC LOUVRE	***	UNIT COSTS: ***	0.57	18.86	0.07	105.25	5.26	129.45	
WC=1100	1.00	EA EELEB	1	19	0	105	5	129	
CD=3 EL 7002 4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	***	UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01	
WC=1100	52.00	EA EELEB	28	928	4	6,344	317	7,593	
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	***	UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29	
WC=1100	84.00	EA EELEB	49	1,631	6	11,424	571	13,633	
CD=3 EL 7007 8 FT 1 LAMP W/ REFLECTOR	***	UNIT COSTS: ***	0.54	17.84	0.07	109.00	5.45	132.36	
WC=1100	22.00	EA EELEB	12	393	2	2,398	120	2,912	
TOTAL DIVISION 16 ELECTRICAL	90			2,970	12	20,271	1,014	24,267	
TOTAL FACILITY AA. ELECTRICAL	90			2,970	12	20,271	1,014	24,267	
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	90			2,970	12	20,271	1,014	24,267	
TOTAL BASE BID	90			2,970	12	20,271	1,014	24,267	
TOTAL ADDITIVE	0			0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	90			2,970	12	20,271	1,014	24,267	

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5
4-265

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5
4-266

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	24,267	10.0% 2,427	0.0% 0	7.5% 2,002	2.5% 717	0.0% 0	29,413	29412.84
BID ITEM TOTAL		1.00 EA	24,267	2,427	0	2,002	717	0	29,413	29412.84
TOTAL BASE BID			24,267	2,427	0	2,002	717	0	29,413	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			24,267	2,427	0	2,002	717	0	29,413	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	29,413		29,413	29412.80
	TOTAL CURRENT CONTRACT COST			29,413	0	29,413	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			29,413	0	29,413	
	Government-Furnished Property			0		0	
	SUBTOTAL			29,413	0	29,413	
	Contingencies	10.0%		2,941	0	2,941	
	SUBTOTAL			32,354	0	32,354	
	SIOH (S&A)	5.0%		1,618	0	1,618	
	CURRENT WORKING ESTIMATE			33,972	0	33,972	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5
4-268

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	** SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	90	2,970	12	21,285	24,267 100.0%	0	24,267
	TOTAL DIRECT				90	2,970	12	21,285	24,267 100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	BOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		24,267	2,427	10.0%	0.0		2,002	7.5%	2.5%	0.0%		29,413	100.0%		29412.84
	TOTAL OVERHEAD & PROFIT			2,427	10.0%			2,002	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5

4-270

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	90	2,970	12	20,271	1,014	24,267
TOTAL DIRECT	90	2,970	12	20,271	1,014	24,267

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5
4-271

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	90	2,970	12	20,271	1,014	24,267
TOTAL DIRECT	90	2,970	12	20,271	1,014	24,267

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6087E5

4-272

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:1

EQUIPMENT SUMMARY

SUMMARY PAGE

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	RATE	RATE	HOURS	COS
EMI20 SMALL TOOLS							1.40	1.40		8	1
TOTAL PROJECT EQUIPMENT HOURS										8	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6087

TIME 13:40:10

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	**** TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	90	2,970
TOTAL PROJECT MANHOURS								90	2,970

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6088

BUILDING USE:

HOURS/DAY 8

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

2 1 LAMP @ 48 W/FXT = 96 WATTS
 30 1 LAMP @ 84 W/FXT = 2520 WATTS
 6 2 LAMP @ 96 W/FXT = 576 WATTS
 0 2 LAMP @ 75.6 W/FXT = 0 WATTS
 0 3 LAMP @ 144 W/FXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FXT = 0 WATTS
 84 4 LAMP @ 192 W/FXT = 16128 WATTS
 1 4 LAMP @ 151.2 W/FXT = 151.2 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS
 0 4 LAMP @ 88 W/FXT = 0 WATTS
 0 2 LAMP U @ 96 W/FXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS
 22 2 LAMP @ 168 W/FXT = 3696 WATTS

TOTAL EXISTING KW 23.2

REPLACEMENT FIXTURE DATA

4 FOOT

32 1 LAMP @ 37 W/FXT = 1184 WATTS
 6 1 LAMP W/ REFLECTORS 37 W/FXT = 222 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 85 2 LAMP W/ REFLECTORS 58 W/FXT = 4930 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0 2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

22 1 LAMP W/ REFLECTORS 58 W/FXT = 1276 WATTS

TOTAL REPLACEMENT KW 7.6

NET ENERGY SAVINGS 110.4 MBTU/YR

NET DOLLAR SAVINGS \$2,882.86

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 2

31 AUGUST 1993

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: 6088

EXIT SIGNS 4

CURRENT WATTAGE 40

REPLACEMENT WATTAGE 3

HOURS/YEAR 8760

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS 4.42 MBTU/YR NET DOLLAR SAVINGS \$48.33

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 13:46:45

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6088

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5

4-277

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 13:46:45

DETAILED ESTIMATE

DETAIL PAGE 2

BASE BID

DIVISION 16 ELECTRICAL				QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT
16500 LIGHTING												
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST												
CD=3 EL 7001	4 FT 1 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***	0.57	18.86	0.07	105.25	5.26	129.45				
WC=1100		32.00 EA EELEB	18	604	2	3,368	168	4,140				
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01				
WC=1100		6.00 EA EELEB	3	107	0	732	37	876				
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29				
WC=1100		85.00 EA EELEB	50	1,651	6	11,560	578	13,795				
CD=3 EL 7007	8 FT 1 LAMP W/ REFLECTOR	*** UNIT COSTS: ***	0.54	17.84	0.07	109.00	5.45	132.36				
WC=1100		22.00 EA EELEB	12	393	2	2,398	120	2,912				
16530 1100 SURFACE OR PENDANT MOUNTED												
CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	*** UNIT COSTS: ***	1.25	41.26	0.00	121.45	6.07	168.79				
WC=1100		4.00 EA EELEA	5	165	0	486	24	675				
TOTAL DIVISION 16 ELECTRICAL								88	2,919	11	18,544	927 22,401
TOTAL FACILITY AA. ELECTRICAL								88	2,919	11	18,544	927 22,401
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE								88	2,919	11	18,544	927 22,401
TOTAL BASE BID								88	2,919	11	18,544	927 22,401
TOTAL ADDITIVE								0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY								88	2,919	11	18,544	927 22,401

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5

4-279

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:4

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BI

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COS
AA	ELECTRICAL	1.00 EA	22,401	10.0% 2,240	0.0% 0	7.5% 1,848	2.5% 662	0.0% 0	27,151	27150.8
<hr/>										
BID ITEM TOTAL		1.00 EA	22,401	2,240	0	1,848	662	0	27,151	27150.8
<hr/>										
TOTAL BASE BID			22,401	2,240	0	1,848	662	0	27,151	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
<hr/>										
TOTAL INCL ADD			22,401	2,240	0	1,848	662	0	27,151	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00	EA	27,151		27,151	27150.80
	TOTAL CURRENT CONTRACT COST			27,151	0	27,151	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			27,151	0	27,151	
	Government-Furnished Property			0		0	
	SUBTOTAL			27,151	0	27,151	
	Contingencies	10.0%		2,715	0	2,715	
	SUBTOTAL			29,866	0	29,866	
	SIOH (S&A)	5.0%		1,493	0	1,493	
	CURRENT WORKING ESTIMATE			31,359	0	31,359	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-282

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PK	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	SUBCON W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	88	2,919	11	19,471		22,401	100.0%	0	22,401
	TOTAL DIRECT				88	2,919	11	19,471		22,401	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-283

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		22,401	2,240	10.0%	0.0		1,848	7.5%	2.5%	0.0%		27,151	100.0%		27150.83
	TOTAL OVERHEAD & PROFIT			2,240	10.0%			1,848	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-284

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	88	2,919	11	18,544	927	22,401
TOTAL DIRECT	88	2,919	11	18,544	927	22,401

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-285

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	88	2,919	11	18,544	927	22,401
TOTAL DIRECT	88	2,919	11	18,544	927	22,401

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-286

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:45

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS									1.40	1.40	8	11
TOTAL PROJECT EQUIPMENT HOURS											8	11

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6088

TIME 13:46:41

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	88	2,919
TOTAL PROJECT MANHOURS								88	2,919

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6088E5
4-288

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 6: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6254

BUILDING USE:

HOURS/DAY 12

DAYS/WEEK 7

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @ 48 W/FXT = 0 WATTS
 0 1 LAMP @ 37.8 W/FXT = 0 WATTS
 0 2 LAMP @ 96 W/FXT = 0 WATTS
 8 2 LAMP @ 86.4 W/FXT = 691.2 WATTS
 0 3 LAMP @ 144 W/FXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FXT = 0 WATTS
 0 4 LAMP @ 192 W/FXT = 0 WATTS
 55 4 LAMP @ 172.8 W/FXT = 9504 WATTS

4 FOOT

0 1 LAMP @ 37 W/FXT = 0 WATTS
 8 1 LAMP W/ REFLECTORS 37 W/FXT = 296 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 55 2 LAMP W/ REFLECTORS 58 W/FXT = 3190 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS
 0 4 LAMP @ 88 W/FXT = 0 WATTS
 0 2 LAMP U @ 96 W/FXT = 0 WATTS
 30 2 LAMP U @ 86.4 W/FXT = 2592 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 30 2 LAMP U @ 58 W/FXT = 1740 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS
 0 2 LAMP @ 165 W/FXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL EXISTING KW 12.8

TOTAL REPLACEMENT KW 5.2

NET ENERGY SAVINGS 112.7 MBTU/YR

NET DOLLAR SAVINGS \$1,767.05

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6254

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
5 LAMPS @	52 WATTS =	260 WATTS
0 LAMPS @	60 WATTS =	0 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
0 LAMPS @	100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 260

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
5 LAMPS @	13 WATTS =	65 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
0 LAMPS @	26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 65

NET ENERGY SAVINGS 0.51 MBTU/YR

NET DOLLAR SAVINGS \$3.22

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:00:02

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6254

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-291

\ Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:0

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DETAILED ESTIMATE	DETAIL PAGE
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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6254
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:00:03

TAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP	*** UNIT COSTS: ***			1.25	41.26	0.00	27.80	1.39	70.45
WC=1100	WHITE ACRYLIC LENS	5.00 EA EELEA		6	206	0	0	139	7	352
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		8.00 EA EELEB		4	143	1	1	976	49	1,168
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100		55.00 EA EELEB		32	1,068	4	4	7,480	374	8,926
CD=3 EL 7006	2 FT 2 LAMP U PARABOLIC LOUVRE	*** UNIT COSTS: ***			0.52	17.19	0.07	119.00	5.95	142.21
WC=1100		30.00 EA EELEB		16	516	2	2	3,570	179	4,266
TOTAL DIVISION 16 ELECTRICAL					59	1,933	7	12,165	608	14,713
TOTAL FACILITY AA. ELECTRICAL					59	1,933	7	12,165	608	14,713
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					59	1,933	7	12,165	608	14,713
TOTAL BASE BID					59	1,933	7	12,165	608	14,713
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					59	1,933	7	12,165	608	14,713

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
 4-293

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	14,713	1,471	0	1,214	435	0	17,833	17832.83
BID ITEM TOTAL	1.00 EA	14,713	1,471	0	1,214	435	0	17,833	17832.83
TOTAL BASE BID		14,713	1,471	0	1,214	435	0	17,833	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		14,713	1,471	0	1,214	435	0	17,833	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-295

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

JECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	17,833		17,833	17832.80
	TOTAL CURRENT CONTRACT COST			17,833	0	17,833	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			17,833	0	17,833	
	Government-Furnished Property			0		0	
	SUBTOTAL			17,833	0	17,833	
	Contingencies	10.0%		1,783	0	1,783	
	SUBTOTAL			19,616	0	19,616	
	SIOH (S&A)	5.0%		981	0	981	
	CURRENT WORKING ESTIMATE			20,597	0	20,597	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-296

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:00

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	59	1,933	7	12,773	14,713 100.0%	0	14,713
	TOTAL DIRECT				59	1,933	7	12,773	14,713 100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		14,713	1,471	10.0%	0.0		1,214	7.5%	2.5%	0.0%		17,833	100.0%		17832.84
	TOTAL OVERHEAD & PROFIT			1,471	10.0%			1,214	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-298

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	59	1,933	7	12,165	608	14,713
TOTAL DIRECT	59	1,933	7	12,165	608	14,713

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-299

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	59	1,933	7	12,165	608	14,713
TOTAL DIRECT	59	1,933	7	12,165	608	14,713

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6254E5
4-300

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:03

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	5	7
TOTAL PROJECT EQUIPMENT HOURS										5	7

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6254

TIME 14:00:0

LABOR SUMMARY

SUMMARY PAGE

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	59	1,933
TOTAL PROJECT MANHOURS								59	1,933

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6302

BUILDING USE:

HOURS/DAY 10

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @ 48 W/FXT = 0 WATTS
 0 1 LAMP @ 37.8 W/FXT = 0 WATTS
 14 2 LAMP @ 96 W/FXT = 1344 WATTS
 0 2 LAMP @ 75.6 W/FXT = 0 WATTS
 0 3 LAMP @ 144 W/FXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FXT = 0 WATTS
 28 4 LAMP @ 192 W/FXT = 5376 WATTS
 0 4 LAMP @ 151.2 W/FXT = 0 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS
 0 4 LAMP @ 88 W/FXT = 0 WATTS
 0 2 LAMP U @ 96 W/FXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS
 0 2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW

6.7

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FXT = 0 WATTS
 14 1 LAMP W/ REFLECTORS 37 W/FXT = 518 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 28 2 LAMP W/ REFLECTORS 58 W/FXT = 1624 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0 2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW

2.1

NET ENERGY SAVINGS

40.6 MBTU/YR

NET DOLLAR SAVINGS

\$898.77

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:11:56

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6302

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6302E5
4-304

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

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DETAILED ESTIMATE DETAIL PAGE

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6302
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:11:56

TAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL			QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$

16500 LIGHTING											
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST											
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.54				17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	14.00 EA EELEB	8			250		1	1,708	85	2,044
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.59				19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	28.00 EA EELEB	16			544		2	3,808	190	4,544

TOTAL DIVISION 16 ELECTRICAL						24	793	3	5,516	276	6,588

TOTAL FACILITY AA. ELECTRICAL						24	793	3	5,516	276	6,588

TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE						24	793	3	5,516	276	6,588

TOTAL BASE BID						24	793	3	5,516	276	6,588

TOTAL ADDITIVE						0	0	0	0	0	0

TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY						24	793	3	5,516	276	6,588

* * * END OF DETAIL REPORT * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6302

TIME 14:11:50

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OPC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	6,588	10.0% 659	0.0% 0	7.5% 544	2.5% 195	0.0% 0	7,986	7985.55
BID ITEM TOTAL		1.00 EA	6,588	659	0	544	195	0	7,986	7985.55
TOTAL BASE BID			6,588	659	0	544	195	0	7,986	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			6,588	659	0	544	195	0	7,986	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	7,986		7,986	7985.60
	TOTAL CURRENT CONTRACT COST			7,986	0	7,986	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			7,986	0	7,986	
	Government-Furnished Property			0		0	
	SUBTOTAL			7,986	0	7,986	
	Contingencies	10.0%		799	0	799	
	SUBTOTAL			8,784	0	8,784	
	SIOH (S&A)	5.0%		439	0	439	
	CURRENT WORKING ESTIMATE			9,223	0	9,223	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	24	793	3	5,792		6,588	100.0%	0	6,588
	TOTAL DIRECT				24	793	3	5,792		6,588	100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		6,588		659	10.0%	0.0		544	7.5%	2.5%	0.0%		7,986	100.0%	7985.55
	TOTAL OVERHEAD & PROFIT				659	10.0%			544	7.5%						

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6302E5
4-311

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	24	793	3	5,516	276	6,588
TOTAL DIRECT	24	793	3	5,516	276	6,588

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6302E5

4-312

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

STEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	24	793	3	5,516	276	6,588
TOTAL DIRECT	24	793	3	5,516	276	6,588

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6302E5
4-313

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
ENI20 SMALL TOOLS								1.40	1.40	2	3
TOTAL PROJECT EQUIPMENT HOURS										2	3

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6302

TIME 14:11:56

BOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	24	794
TOTAL PROJECT MANHOURS								24	794

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 6. INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6304

BUILDING USE:

HOURS/DAY 10
DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

2 1 LAMP @ 48 W/FXT = 96 WATTS
0 1 LAMP @ 37.8 W/FXT = 0 WATTS
14 2 LAMP @ 96 W/FXT = 1344 WATTS
0 2 LAMP @ 75.6 W/FXT = 0 WATTS
0 3 LAMP @ 144 W/FXT = 0 WATTS
0 3 LAMP @ 113.4 W/FXT = 0 WATTS
30 4 LAMP @ 192 W/FXT = 5760 WATTS
0 4 LAMP @ 151.2 W/FXT = 0 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

2 1 LAMP @ 37 W/FXT = 74 WATTS
14 1 LAMP W/ REFLECTORS 37 W/FXT = 518 WATTS
0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
30 2 LAMP W/ REFLECTORS 58 W/FXT = 1740 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS
0 4 LAMP @ 86 W/FXT = 0 WATTS
0 2 LAMP U @ 96 W/FXT = 0 WATTS
0 2 LAMP U @ 75.6 W/FXT = 0 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS
0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
0 2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS
0 2 LAMP @ 168 W/FXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL EXISTING KW

7.2

TOTAL REPLACEMENT KW

2.3

NET ENERGY SAVINGS

43.2 MBTU/YR

NET DOLLAR SAVINGS

\$955.71

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:20:54

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6304

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6304E5
4-317

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

*** END TABLE OF CONTENTS ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6304
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:20:54

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL			QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$

16500 LIGHTING											
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST											
CD=3 EL 7001	4 FT 1 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***	0.57			18.86	0.07	105.25	5.26	129.45	
WC=1100		2.00 EA EELEB	1		38	0	211	11	259		
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.54			17.84	0.07	122.00	6.10	146.01	
WC=1100		14.00 EA EELEB	8		250	1	1,708	85	2,044		
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.59			19.42	0.08	136.00	6.80	162.29	
WC=1100		30.00 EA EELEB	18		583	2	4,080	204	4,869		
TOTAL DIVISION 16 ELECTRICAL						26	870	3	5,999	300	7,172
TOTAL FACILITY AA. ELECTRICAL						26	870	3	5,999	300	7,172
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE						26	870	3	5,999	300	7,172
TOTAL BASE BID						26	870	3	5,999	300	7,172
TOTAL ADDITIVE						0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY						26	870	3	5,999	300	7,172

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6304E5
 4-319

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6304

TIME 14:20:54

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OPC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	7,172	717	0	592	212	0	8,693	8692.78
BID ITEM TOTAL		1.00 EA	7,172	717	0	592	212	0	8,693	8692.78
TOTAL BASE BID			7,172	717	0	592	212	0	8,693	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			7,172	717	0	592	212	0	8,693	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	8,693		8,693	8692.80
TOTAL CURRENT CONTRACT COST				8,693	0	8,693	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				8,693	0	8,693	
Government-Furnished Property				0		0	
SUBTOTAL				8,693	0	8,693	
Contingencies		10.0%		869	0	869	
SUBTOTAL				9,562	0	9,562	
SIOH (S&A)		5.0%		478	0	478	
CURRENT WORKING ESTIMATE				10,040	0	10,040	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:5

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	QUANTITY	DOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT *	* SUBCON *	W/OH&P	SUBTOTAL
										AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	26	870	3	6,298		7,172	100.0%	0	7,172
	TOTAL DIRECT				26	870	3	6,298		7,172	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6304E5

4-323

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		7,172	717	10.0%	0.0		592	7.5%	2.5%	0.0%		8,693	100.0%		8692.77
	TOTAL OVERHEAD & PROFIT			717	10.0%			592	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:5-

SI DIVISION SUMMARY

SUMMARY PAGE 1

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	26	870	3	5,999	300	7,172
TOTAL DIRECT	26	870	3	5,999	300	7,172

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6304E5
4-325

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:5

SYSTEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	26	870	3	5,999	300	7,172
TOTAL DIRECT	26	870	3	5,999	300	7,172

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	2	3
TOTAL PROJECT EQUIPMENT HOURS										2	3

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6304E5
4-327

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6304

TIME 14:20:54

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	26	871
TOTAL PROJECT MANHOURS								26	871

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6306

BUILDING USE:

HOURS/DAY 10

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FIXT = 0 WATTS
 23.2 LAMP @ 96 W/FIXT = 2208 WATTS
 0.2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0.3 LAMP @ 144 W/FIXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FIXT = 0 WATTS
 30.4 LAMP @ 192 W/FIXT = 5760 WATTS
 0.4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS
 0.4 LAMP @ 88 W/FIXT = 0 WATTS
 0.2 LAMP U @ 96 W/FIXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS
 0.2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 8.0

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
 23.1 LAMP W/ REFLECTORS 37 W/FIXT = 851 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 30.2 LAMP W/ REFLECTORS 58 W/FIXT = 1740 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 2.6

NET ENERGY SAVINGS 47.7 MBTU/YR

NET DOLLAR SAVINGS \$1,055.63

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:29:38

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6306

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5

4-330

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:38

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6306
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:29:38

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	23.00 EA EELEB		12	410		2	2,806	140	3,358
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	30.00 EA EELEB		18	583		2	4,080	204	4,869
TOTAL DIVISION 16 ELECTRICAL					30	993	4	6,886	344	8,227
TOTAL FACILITY AA. ELECTRICAL					30	993	4	6,886	344	8,227
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					30	993	4	6,886	344	8,227
TOTAL BASE BID					30	993	4	6,886	344	8,227
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					30	993	4	6,886	344	8,227

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5
 4-332

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:3

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5
4-333

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6306

TIME 14:29:38

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	8,227	10.0% 823	0.0% 0	7.5% 679	2.5% 243	0.0% 0	9,972 9971.77
BID ITEM TOTAL	1.00 EA	8,227	823	0	679	243	0	9,972	9971.77
TOTAL BASE BID		8,227	823	0	679	243	0	9,972	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		8,227	823	0	679	243	0	9,972	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:3

PROJECT CWE SUMMARY

SUMMARY PAGE

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00 EA	9,972		9,972	9971.80
	TOTAL CURRENT CONTRACT COST		9,972	0	9,972	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		9,972	0	9,972	
	Government-Furnished Property		0		0	
	SUBTOTAL		9,972	0	9,972	
	Contingencies	10.0%	997	0	997	
	SUBTOTAL		10,969	0	10,969	
	SIOH (S&A)	5.0%	548	0	548	
	CURRENT WORKING ESTIMATE		11,517	0	11,517	
	Estimated Construction Time	365 Days				

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:38

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	30	993	4	7,230		8,227	100.0%	0	8,227
	TOTAL DIRECT				30	993	4	7,230		8,227	100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:3

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOF%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COS
AA	GENERAL/PRIME		8,227	823	10.0%	0.0		679	7.5%	2.5%	0.0%		9,972	100.0%		9971.7
	TOTAL OVERHEAD & PROFIT			823	10.0%			679	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS N-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:38

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	30	993	4	6,886	344	8,227
TOTAL DIRECT	30	993	4	6,886	344	8,227

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5
4-338

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:38

SYSTEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	30	993	4	6,886	344	8,227
TOTAL DIRECT	30	993	4	6,886	344	8,227

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5
4-339

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:38

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	3	4
TOTAL PROJECT EQUIPMENT HOURS										3	4

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6306

TIME 14:29:3

BOR SUMMARY

SUMMARY PAGE

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	30	993
TOTAL PROJECT MANHOURS								30	993

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6306E5

4-341

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 1

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6308

BUILDING USE:

HOURS/DAY 12

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

2 1 LAMP @ 48 W/FIXT = 96 WATTS
 0 1 LAMP @ 37.8 W/FIXT = 0 WATTS
 2 4 2 LAMP @ 96 W/FIXT = 2304 WATTS
 0 2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0 3 LAMP @ 144 W/FIXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FIXT = 0 WATTS
 32 4 LAMP @ 192 W/FIXT = 6144 WATTS
 0 4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 31 W/FIXT = 0 WATTS
 0 4 LAMP @ 88 W/FIXT = 0 WATTS
 0 2 LAMP U @ 96 W/FIXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FIXT = 0 WATTS
 0 2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 8.5

REPLACEMENT FIXTURE DATA

4 FOOT

2 1 LAMP @ 37 W/FIXT = 74 WATTS
 24 1 LAMP W/ REFLECTORS 37 W/FIXT = 888 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 32 2 LAMP W/ REFLECTORS 58 W/FIXT = 1856 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 2.8

NET ENERGY SAVINGS 61.0 MBTU/YR

NET DOLLAR SAVINGS \$1,187.10

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:36:23

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6308

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

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DETAILED ESTIMATE	DETAIL PAGE
1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6308
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:36:23

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL				QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$

16500 LIGHTING												
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST												
CD=3 EL 7001	4 FT 1 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***	0.57	18.86	0.07	105.25	5.26	129.45				
WC=1100		2.00 EA EELEB	1	38	0	211	11	259				
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01				
WC=1100		24.00 EA EELEB	13	428	2	2,928	146	3,504				
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29				
WC=1100		32.00 EA EELEB	19	621	2	4,352	218	5,193				
TOTAL DIVISION 16 ELECTRICAL							33	1,087	4	7,491	375	8,957
TOTAL FACILITY AA. ELECTRICAL							33	1,087	4	7,491	375	8,957
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE							33	1,087	4	7,491	375	8,957
TOTAL BASE BID							33	1,087	4	7,491	375	8,957
TOTAL ADDITIVE							0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY							33	1,087	4	7,491	375	8,957

*** END OF DETAIL REPORT ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER PCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	8,957	896	0	739	265	0	10,856	10855.96
BID ITEM TOTAL	1.00 EA	8,957	896	0	739	265	0	10,856	10855.96
TOTAL BASE BID		8,957	896	0	739	265	0	10,856	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		8,957	896	0	739	265	0	10,856	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	10,856		10,856	10856.00
	TOTAL CURRENT CONTRACT COST			10,856	0	10,856	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			10,856	0	10,856	
	Government-Furnished Property			0		0	
	SUBTOTAL			10,856	0	10,856	
	Contingencies	10.0%		1,086	0	1,086	
	SUBTOTAL			11,942	0	11,942	
	SIOH (S&A)	5.0%		597	0	597	
	CURRENT WORKING ESTIMATE			12,539	0	12,539	
	Estimated Construction Time	365	Days				

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	AMOUNT	PCT	SUBCON W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	33	1,087	4	7,865	8,957	100.0%	0	8,957
	TOTAL DIRECT				33	1,087	4	7,865	8,957	100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		8,957	896	10.0%	0.0		739	7.5%	2.5%	0.0%		10,856	100.0%		10855.96
	TOTAL OVERHEAD & PROFIT			896	10.0%			739	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	33	1,087	4	7,491	375	8,957
TOTAL DIRECT	33	1,087	4	7,491	375	8,957

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6308E5
4-351

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:21

SYSTEMS SUMMARY

SUMMARY PAGE 1

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	33	1,087	4	7,491	375	8,957
TOTAL DIRECT	33	1,087	4	7,491	375	8,957

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6308E5

4-352

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:2

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSHP	OWNS	OVTM	OWNRSHP	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
ENI20 SMALL TOOLS								1.40	1.40	3	
TOTAL PROJECT EQUIPMENT HOURS										3	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6308

TIME 14:36:23

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	33	1,088
TOTAL PROJECT MANHOURS								33	1,088

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 3

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6390

BUILDING USE:

HOURS/DAY 12

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 180 2 LAMP @ 75.6 W/FXT = 13608 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 8.3 LAMP @ 113.4 W/FXT = 907.2 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 28.4 LAMP @ 151.2 W/FXT = 4233.6 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 18.7

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 180 1 LAMP W/ REFLECTORS 37 W/FXT = 6660 WATTS
 8.2 LAMP W/ REFLECTORS 58 W/FXT = 484 WATTS
 28.2 LAMP W/ REFLECTORS 58 W/FXT = 1624 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 8.7

NET ENERGY SAVINGS 106.5 MBTU/YR

NET DOLLAR SAVINGS \$2,073.93

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 3

31 AUGUST 1993

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6390
AREA: OFFICE

AREA USE:
HOURS/DAY 12
DAYS/WEEK 5

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 LAMP @ 48 W/FIXT = 0 WATTS
1 LAMP @ 37.5 W/FIXT = 0 WATTS
2 LAMP @ 96 W/FIXT = 0 WATTS
4 2 LAMP @ 75.6 W/FIXT = 302.4 WATTS
3 LAMP @ 144 W/FIXT = 0 WATTS
3 LAMP @ 113.4 W/FIXT = 0 WATTS
4 LAMP @ 192 W/FIXT = 0 WATTS
4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

1 LAMP @ 31 W/FIXT = 0 WATTS
4 LAMP @ 88 W/FIXT = 0 WATTS
2 LAMP U @ 96 W/FIXT = 0 WATTS
2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

2 LAMP @ 180 W/FIXT = 0 WATTS
2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.302

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FIXT = 0 WATTS
4 1 LAMP @ 37 W/FIXT = 148 WATTS
0 2 LAMP @ 58 W/FIXT = 0 WATTS
0 2 LAMP @ 58 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
0 2 LAMP @ 41 W/FIXT = 0 WATTS

0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.148

NET ENERGY SAVINGS 1.64 MBTU/YR

NET DOLLAR SAVINGS \$32.01

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 3 OF 3

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: 6390

EXIT SIGNS 8

CURRENT WATTAGE 40

REPLACEMENT WATTAGE 3

HOURS/YEAR 8760

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS

8.84 MBTU/YR

NET DOLLAR SAVINGS

\$96.66

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:42:51

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6390

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6390E5
4-358

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:52

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DETAILED ESTIMATE

DETAIL PAGE

1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

* * * END TABLE OF CONTENTS * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6390
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:42:51

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT S
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7001	4 FT 1 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***			0.57	18.86	0.07	105.25	5.26	129.41
WC=1100		4.00 EA EELEB		2		75	0	421	21	518
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		176.00 EA EELEB		95		3,140	12	21,472	1,074	25,698
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.28
WC=1100		36.00 EA EELEB		21		699	3	4,896	245	5,843
16530 1100 SURFACE OR PENDANT MOUNTED										
CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	*** UNIT COSTS: ***			1.25	41.26	0.00	121.45	6.07	168.79
WC=1100		8.00 EA EELEA		10		330	0	972	49	1,350
TOTAL DIVISION 16 ELECTRICAL					129	4,245	15	27,761	1,388	33,409
TOTAL FACILITY AA. ELECTRICAL					129	4,245	15	27,761	1,388	33,409
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					129	4,245	15	27,761	1,388	33,409
TOTAL BASE BID					129	4,245	15	27,761	1,388	33,409
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					129	4,245	15	27,761	1,388	33,409

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6390E5
 4-360

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:52

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:5

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COS
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	33,409	3,341	0	2,756	988	0	40,494	40493.72
BID ITEM TOTAL		1.00 EA	33,409	3,341	0	2,756	988	0	40,494	40493.72
TOTAL BASE BID			33,409	3,341	0	2,756	988	0	40,494	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			33,409	3,341	0	2,756	988	0	40,494	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:51

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	40,494		40,494	40493.70
	TOTAL CURRENT CONTRACT COST			40,494	0	40,494	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			40,494	0	40,494	
	Government-Furnished Property			0		0	
	SUBTOTAL			40,494	0	40,494	
	Contingencies	10.0%		4,049	0	4,049	
	SUBTOTAL			44,543	0	44,543	
	SIOH (S&A)	5.0%		2,227	0	2,227	
	CURRENT WORKING ESTIMATE			46,770	0	46,770	
	Estimated Construction Time	365	Days				

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:52

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	129	4,245	15	29,149	33,409 100.0%	0	33,409
	TOTAL DIRECT				129	4,245	15	29,149	33,409 100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:5.

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD *** AMOUNT	PCT	HOFC%	**** PROFIT **** AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT ***** AMOUNT	PCT	UNIT	COS'
AA	GENERAL/PRIME		33,409	3,341	10.0%	0.0	2,756	7.5%	2.5%	0.0%	40,494	100.0%	40493.7	
	TOTAL OVERHEAD & PROFIT			3,341	10.0%		2,756	7.5%						

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:52

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	129	4,245	15	27,761	1,388	33,409
TOTAL DIRECT	129	4,245	15	27,761	1,388	33,409

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6390E5
4-366

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:5.

SYSTEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	129	4,245	15	27,761	1,388	33,409
TOTAL DIRECT	129	4,245	15	27,761	1,388	33,409

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:51

EQUIPMENT SUMMARY

SUMMARY PAGE 8

----- *** BOOK VALUE *** ADJ FACTOR ADJUSTD BOOK OP -- HRLY --- UPB **** TOTAL ****											
EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST

EMI20 SMALL TOOLS								1.40	1.40	11	15
										-----	-----
TOTAL PROJECT EQUIPMENT HOURS										11	15

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6390

TIME 14:42:51

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	129	4,244
TOTAL PROJECT MANHOURS								129	4,244

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6708

BUILDING USE:

HOURS/DAY 14

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @ 48 W/FXT = 0 WATTS
 0 1 LAMP @ 37.8 W/FXT = 0 WATTS
 0 2 LAMP @ 96 W/FXT = 0 WATTS
 0 2 LAMP @ 75.6 W/FXT = 0 WATTS
 0 3 LAMP @ 144 W/FXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FXT = 0 WATTS
 0 4 LAMP @ 192 W/FXT = 0 WATTS
 28 4 LAMP @ 151.2 W/FXT = 4233.6 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS
 0 4 LAMP @ 88 W/FXT = 0 WATTS
 0 2 LAMP U @ 96 W/FXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS
 0 2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 4.2

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FXT = 0 WATTS
 0 1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 28 2 LAMP W/ REFLECTORS 58 W/FXT = 1624 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0 2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 1.6

NET ENERGY SAVINGS 32.4 MBTU/YR

NET DOLLAR SAVINGS \$569.70

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6708

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS	0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS	0 LAMPS @ 9 WATTS =	0 WATTS
0 LAMPS @ 52 WATTS =	0 WATTS	0 LAMPS @ 13 WATTS =	0 WATTS
0 LAMPS @ 60 WATTS =	0 WATTS	0 LAMPS @ 18 WATTS =	0 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS	3 LAMPS @ 26 WATTS =	78 WATTS
3 LAMPS @ 90 WATTS =	270 WATTS		
0 LAMPS @ 100 WATTS =	0 WATTS		

TOTAL EXISTING WATTS 270

TOTAL REPLACEMENT WATTS 78

NET ENERGY SAVINGS 0.51 MBTU/YR

NET DOLLAR SAVINGS \$3.17

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:49:37

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6708

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:3

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DETAILED ESTIMATE

DETAIL PAGE

1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

* * * END TABLE OF CONTENTS * * *

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6708
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:49:3

DETAILED ESTIMATE

DETAIL PAGE

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6107	SURF SQ W/1 26W BIAxIAL FL LAMP *** UNIT COSTS: ***	1.25				41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS 3.00 EA EELEA	4				124	0	93	5	22
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59				19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR 28.00 EA EELEB	16				544	2	3,808	190	4,544
TOTAL DIVISION 16 ELECTRICAL		20				667	2	3,901	195	4,766
TOTAL FACILITY AA. ELECTRICAL		20				667	2	3,901	195	4,766
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE		20				667	2	3,901	195	4,766
TOTAL BASE BID		20				667	2	3,901	195	4,766
TOTAL ADDITIVE		0				0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY		20				667	2	3,901	195	4,766

*** END OF DETAIL REPORT ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:3

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	4,766	477	0	393	141	0	5,776	5776.28
BID ITEM TOTAL		1.00 EA	4,766	477	0	393	141	0	5,776	5776.28
TOTAL BASE BID			4,766	477	0	393	141	0	5,776	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			4,766	477	0	393	141	0	5,776	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	5,776		5,776	5776.30
	TOTAL CURRENT CONTRACT COST			5,776	0	5,776	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			5,776	0	5,776	
	Government-Furnished Property			0		0	
	SUBTOTAL			5,776	0	5,776	
	Contingencies	10.0%		578	0	578	
	SUBTOTAL			6,354	0	6,354	
	SIOH (S&A)	5.0%		318	0	318	
	CURRENT WORKING ESTIMATE			6,672	0	6,672	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	20	667	2	4,096		4,766 100.0%	0	4,766
	TOTAL DIRECT				20	667	2	4,096		4,766 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6708E5
4-378

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		4,766	477	10.0%	0.0		393	7.5%	2.5%	0.0%		5,776	100.0%		5776.27
	TOTAL OVERHEAD & PROFIT			477	10.0%			393	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

CSI DIVISION SUMMARY

SUMMARY PAGE 1

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	20	667	2	3,901	195	4,766
TOTAL DIRECT	20	667	2	3,901	195	4,766

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	20	667	2	3,901	195	4,766
TOTAL DIRECT	20	667	2	3,901	195	4,766

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6708E5
4-381

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
ENI20 SMALL TOOLS								1.40	1.40	2	2
TOTAL PROJECT EQUIPMENT HOURS										2	2

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6708

TIME 14:49:37

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	20	668
TOTAL PROJECT MANHOURS								20	668

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6713

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 37.4 LAMP @ 151.2 W/FXT = 5594.4 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 166 W/FXT = 0 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 37.2 LAMP W/ REFLECTORS 58 W/FXT = 2146 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL EXISTING KW

5.6

TOTAL REPLACEMENT KW

2.1

NET ENERGY SAVINGS

27.5 MBTU/YR

NET DOLLAR SAVINGS

\$658.05

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:56:11

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6713

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5

4-385

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

*** END TABLE OF CONTENTS ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:56:17

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLDORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ WC=1100 REFLECTOR	***	UNIT COSTS: ***		0.59	19.42	0.08	136.00	6.80	162.29
	37.00	EA	EELEB	22	718	3	5,032	252	6,005
TOTAL DIVISION 16 ELECTRICAL				22	718	3	5,032	252	6,005
TOTAL FACILITY AA. ELECTRICAL				22	718	3	5,032	252	6,005
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				22	718	3	5,032	252	6,005
TOTAL BASE BID				22	718	3	5,032	252	6,005
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				22	718	3	5,032	252	6,005

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5
4-387

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6713

TIME 14:56:17

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	6,005	10.0% 600	0.0% 0	7.5% 495	2.5% 178	0.0% 0	7,278 7278.27
BID ITEM TOTAL	1.00 EA	6,005	600	0	495	178	0	7,278	7278.27
TOTAL BASE BID		6,005	600	0	495	178	0	7,278	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		6,005	600	0	495	178	0	7,278	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS H-CACES
ENERGY SAVINGS OPPORTUNITY SURVEY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00 EA	7,278		7,278	7278.30
	TOTAL CURRENT CONTRACT COST		7,278	0	7,278	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		7,278	0	7,278	
	Government-Furnished Property		0		0	
	SUBTOTAL		7,278	0	7,278	
	Contingencies	10.0%	728	0	728	
	SUBTOTAL		8,006	0	8,006	
	SIOH (S&A)	5.0%	400	0	400	
	CURRENT WORKING ESTIMATE		8,406	0	8,406	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5
4-390

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	22	718	3	5,284		6,005	100.0%	0	6,005
	TOTAL DIRECT				22	718	3	5,284		6,005	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5
4-391

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:1

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT	COS
AA	GENERAL/PRIME		6,005	600	10.0%	0.0		495	7.5%	2.5%	0.0%		7,278	100.0%		7278.2	
	TOTAL OVERHEAD & PROFIT			600	10.0%			495	7.5%								

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5
4-392

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	22	718	3	5,032	252	6,005
TOTAL DIRECT	22	718	3	5,032	252	6,005

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713EE
4-393

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	22	718	3	5,032	252	6,005
TOTAL DIRECT	22	718	3	5,032	252	6,005

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6713E5
4-394

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
ENI20 SMALL TOOLS								1.40	1.40	2	3
TOTAL PROJECT EQUIPMENT HOURS										2	3

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6713

TIME 14:56:17

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	22	719
TOTAL PROJECT MANHOURS								22	719

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6714

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 13.2 LAMP @ 96 W/FXT = 1248 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 14.4 LAMP @ 192 W/FXT = 2688 WATTS
 0.4 LAMP @ 151.2 W/FXT = 0 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 3.9

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 13.1 LAMP W/ REFLECTORS 37 W/FXT = 481 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 14.2 LAMP W/ REFLECTORS 58 W/FXT = 812 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 1.3

NET ENERGY SAVINGS 21.1 MBTU/YR

NET DOLLAR SAVINGS \$504.56

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6714

LAMP USE:

HOURS/DAY 5

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
3 LAMPS @	52 WATTS =	156 WATTS
0 LAMPS @	60 WATTS =	0 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
0 LAMPS @	100 WATTS =	0 WATTS
TOTAL EXISTING WATTS		156

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
3 LAMPS @	13 WATTS =	39 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
0 LAMPS @	26 WATTS =	0 WATTS
TOTAL REPLACEMENT WATTS		39

NET ENERGY SAVINGS 0.51 MBTU/YR

NET DOLLAR SAVINGS \$3.22

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:03:14

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
PT CAMPBELL, KY
ECO-5: BUILDING 6714

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-399

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

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DETAILED ESTIMATE

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1. BUILDING TO THE 5 FOOT LINE	
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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6714
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:03:14

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT S
------------------------	----------	-----	------	-------	-------	-----------	----------	---------	----------

16500 LIGHTING

16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)

CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP	*** UNIT COSTS: ***	1.25	41.26	0.00	27.80	1.39	70.45
WC=1100	WHITE ACRYLIC LENS	3.00 EA EELEA	4	124	0	83	4	211

16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST

CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	13.00 EA EELEB	7	232	1	1,586	79	1,898

CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***	0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	14.00 EA EELEB	8	272	1	1,904	95	2,272

TOTAL DIVISION 16 ELECTRICAL	19	628	2	3,573	179	4,382
------------------------------	----	-----	---	-------	-----	-------

TOTAL FACILITY AA. ELECTRICAL	19	628	2	3,573	179	4,382
-------------------------------	----	-----	---	-------	-----	-------

TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	19	628	2	3,573	179	4,382
---	----	-----	---	-------	-----	-------

TOTAL BASE BID	19	628	2	3,573	179	4,382
----------------	----	-----	---	-------	-----	-------

TOTAL ADDITIVE	0	0	0	0	0	0
----------------	---	---	---	---	---	---

TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	19	628	2	3,573	179	4,382
---	----	-----	---	-------	-----	-------

*** END OF DETAIL REPORT ***

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-402

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:11

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	4,382	438	0	361	130	0	5,311	5310.82
BID ITEM TOTAL	1.00 EA	4,382	438	0	361	130	0	5,311	5310.82
TOTAL BASE BID		4,382	438	0	361	130	0	5,311	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		4,382	438	0	361	130	0	5,311	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-403

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00 EA	5,311		5,311	5310.80
	TOTAL CURRENT CONTRACT COST		5,311	0	5,311	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		5,311	0	5,311	
	Government-Furnished Property		0		0	
	SUBTOTAL		5,311	0	5,311	
	Contingencies	10.0%	531	0	531	
	SUBTOTAL		5,842	0	5,842	
	SIOH (S&A)	5.0%	292	0	292	
	CURRENT WORKING ESTIMATE		6,134	0	6,134	
	Estimated Construction Time	365 Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-404

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	19	628	2	3,752		4,382	100.0%	0	4,382
	TOTAL DIRECT				19	628	2	3,752		4,382	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-405

on 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:1

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	BOFC	**** PROFIT ****	AMOUNT	PCT	BOND	OTHER	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT	COS
AA	GENERAL/PRIME		4,382	438	10.0%	0.0		361	7.5%	2.5%	0.0%		5,311	100.0%		5310.8	
	TOTAL OVERHEAD & PROFIT			438	10.0%			361	7.5%								

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

CSI DIVISION SUMMARY

SUMMARY PAGE 1

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	19	628	2	3,573	179	4,382
TOTAL DIRECT	19	628	2	3,573	179	4,382

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-407

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	19	628	2	3,573	179	4,382
TOTAL DIRECT	19	628	2	3,573	179	4,382

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5

4-408

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:1

EQUIPMENT SUMMARY

SUMMARY PAGE

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	1	
TOTAL PROJECT EQUIPMENT HOURS										1	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6714

TIME 15:03:14

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TKS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	19	627
TOTAL PROJECT MANHOURS								19	627

* * * END OF SUMMARY REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6714E5
4-410

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6715

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FIXT = 0 WATTS
 12.2 LAMP @ 96 W/FIXT = 1152 WATTS
 0.2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0.3 LAMP @ 144 W/FIXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FIXT = 0 WATTS
 6.4 LAMP @ 192 W/FIXT = 1152 WATTS
 110.4 LAMP @ 180 W/FIXT = 19800 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS
 12.1 LAMP W/ 37 W/FIXT = 444 WATTS
 REFLECTORS
 0.2 LAMP W/ 58 W/FIXT = 0 WATTS
 REFLECTORS
 116.2 LAMP W/ 58 W/FIXT = 6728 WATTS
 REFLECTORS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS
 0.4 LAMP @ 88 W/FIXT = 0 WATTS
 0.2 LAMP U @ 96 W/FIXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS
 0.2 LAMP W/ 41 W/FIXT = 0 WATTS
 REFLECTORS
 0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS
 0.2 LAMP @ 168 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP W/ 58 W/FIXT = 0 WATTS
 REFLECTORS

TOTAL EXISTING KW 22.1

TOTAL REPLACEMENT KW 7.2

NET ENERGY SAVINGS 119.2 MBTU/YR

NET DOLLAR SAVINGS \$2,849.44

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:10:11

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6715

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5
4-412

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:11

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6715
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:10:13

DETAIL PAGE 1

RAILED ESTIMATE

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		12.00 EA EELEB		6	214		1	1,464	73	1,752
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100		116.00 EA EELEB		68	2,252		9	15,776	789	18,826
TOTAL DIVISION 16 ELECTRICAL					75	2,467	10	17,240	862	20,578
TOTAL FACILITY AA. ELECTRICAL					75	2,467	10	17,240	862	20,578
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					75	2,467	10	17,240	862	20,578
TOTAL BASE BID					75	2,467	10	17,240	862	20,578
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					75	2,467	10	17,240	862	20,578

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5

4-414

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:13

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:11

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	20,578	2,058	0	1,698	608	0	24,942	24942.08
BID ITEM TOTAL		1.00 EA	20,578	2,058	0	1,698	608	0	24,942	24942.08
TOTAL BASE BID			20,578	2,058	0	1,698	608	0	24,942	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			20,578	2,058	0	1,698	608	0	24,942	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVEY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:13

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	24,942		24,942	24942.10
TOTAL CURRENT CONTRACT COST				24,942	0	24,942	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				24,942	0	24,942	
Government-Furnished Property				0		0	
SUBTOTAL				24,942	0	24,942	
Contingencies		10.0%		2,494	0	2,494	
SUBTOTAL				27,436	0	27,436	
SIOH (S&A)		5.0%		1,372	0	1,372	
CURRENT WORKING ESTIMATE				28,808	0	28,808	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5
4-417

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:13

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT *	* SUBCON *	W/OH&P	SUBTOTAL
									AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	75	2,467	10	18,102	20,578	100.0%	0	20,578
	TOTAL DIRECT				75	2,467	10	18,102	20,578	100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:11

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		20,578	2,058	10.0%	0.0		1,698	7.5%	2.5%	0.0%		24,942	100.0%		24942.00
	TOTAL OVERHEAD & PROFIT			2,058	10.0%			1,698	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:13

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	75	2,467	10	17,240	862	20,578
TOTAL DIRECT	75	2,467	10	17,240	862	20,578

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5
4-420

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:11

SYSTEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	75	2,467	10	17,240	862	20,578
TOTAL DIRECT	75	2,467	10	17,240	862	20,578

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5
4-421

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:13

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSHP	OWNS	OVTM	OWNRSHP	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	7	10
TOTAL PROJECT EQUIPMENT HOURS										7	10

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6715E5
4-422

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6715

TIME 15:10:11

LABOR SUMMARY

SUMMARY PAGE

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	75	2,466
TOTAL PROJECT MANHOURS								75	2,466

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 2

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6717

BUILDING USE:

HOURS/DAY 12

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @	48 W/FIXT =	0 WATTS	0 1 LAMP @	37 W/FIXT =	0 WATTS
0 1 LAMP @	37.8 W/FIXT =	0 WATTS			
17 2 LAMP @	96 W/FIXT =	1632 WATTS	17 1 LAMP W/	37 W/FIXT =	629 WATTS
0 2 LAMP @	75.6 W/FIXT =	0 WATTS	REFLECTORS		
0 3 LAMP @	144 W/FIXT =	0 WATTS	0 2 LAMP W/	58 W/FIXT =	0 WATTS
0 3 LAMP @	113.4 W/FIXT =	0 WATTS	REFLECTORS		
4 4 LAMP @	192 W/FIXT =	768 WATTS	4 2 LAMP W/	58 W/FIXT =	232 WATTS
0 4 LAMP @	151.2 W/FIXT =	0 WATTS	REFLECTORS		

2 FOOT

0 1 LAMP @	31 W/FIXT =	0 WATTS	0 1 LAMP @	24 W/FIXT =	0 WATTS
0 4 LAMP @	88 W/FIXT =	0 WATTS	0 2 LAMP W/	41 W/FIXT =	0 WATTS
			REFLECTORS		
0 2 LAMP U @	96 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
0 2 LAMP U @	75.6 W/FIXT =	0 WATTS			

8 FOOT

0 2 LAMP @	180 W/FIXT =	0 WATTS	0 1 LAMP W/	58 W/FIXT =	0 WATTS
0 2 LAMP @	168 W/FIXT =	0 WATTS	REFLECTORS		

TOTAL EXISTING KW

2.4

TOTAL REPLACEMENT KW

0.9

NET ENERGY SAVINGS

16.4 MBTU/YR

NET DOLLAR SAVINGS

\$319.06

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6717

LAMP USE:

HOURS/DAY 12

DAYS/WEEK 5

PEAK USE 2 (1 - YES, 2 - NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
3 LAMPS @	52 WATTS =	156 WATTS
0 LAMPS @	60 WATTS =	0 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
1 LAMPS @	100 WATTS =	100 WATTS

TOTAL EXISTING WATTS 256

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
3 LAMPS @	13 WATTS =	39 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
1 LAMPS @	28 WATTS =	28 WATTS

TOTAL REPLACEMENT WATTS 65

NET ENERGY SAVINGS 2.03 MBTU/YR

NET DOLLAR SAVINGS \$12.60

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:16:58

FILE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6717

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5
4-426

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:16:58

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAxIAL FL LAMP	*** UNIT COSTS: ***			1.25	41.26	0.00	27.80	1.39	70.45
WC=1100	WHITE ACRYLIC LENS	3.00 EA EELEA		4		124	0	83	4	211
CD=3 EL 6107	SURF SQ W/1 26W BIAxIAL FL LAMP	*** UNIT COSTS: ***			1.25	41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS	1.00 EA EELEA		1		41	0	31	2	74
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	17.00 EA EELEB		9		303	1	2,074	104	2,482
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	4.00 EA EELEB		2		78	0	544	27	649
TOTAL DIVISION 16 ELECTRICAL					17	546	1	2,732	137	3,417
TOTAL FACILITY AA. ELECTRICAL					17	546	1	2,732	137	3,417
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					17	546	1	2,732	137	3,417
TOTAL BASE BID					17	546	1	2,732	137	3,417
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					17	546	1	2,732	137	3,417

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5
4-428

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:5

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	3,417	342	0	282	101	0	4,141	4141.00
BID ITEM TOTAL	1.00 EA	3,417	342	0	282	101	0	4,141	4141.00
TOTAL BASE BID		3,417	342	0	282	101	0	4,141	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		3,417	342	0	282	101	0	4,141	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6717

TIME 15:16:58

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	4,141		4,141	4141.10
	TOTAL CURRENT CONTRACT COST			4,141	0	4,141	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			4,141	0	4,141	
	Government-Furnished Property			0		0	
	SUBTOTAL			4,141	0	4,141	
	Contingencies	10.0%		414	0	414	
	SUBTOTAL			4,555	0	4,555	
	SIOH (S&A)	5.0%		228	0	228	
	CURRENT WORKING ESTIMATE			4,783	0	4,783	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5
 4-431

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT *	* SUBCON *	W/OH&P	SUBTOTAL
									AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	17	546	1	2,869	3,417	100.0%	0	3,417
	TOTAL DIRECT				17	546	1	2,869	3,417	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5
4-432

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	BOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		3,417	342	10.0%	0.0		282	7.5%	2.5%	0.0%		4,141	100.0%		4141.09
	TOTAL OVERHEAD & PROFIT			342	10.0%			282	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

I DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	17	546	1	2,732	137	3,417
TOTAL DIRECT	17	546	1	2,732	137	3,417

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5

4-434

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	17	546	1	2,732	137	3,417
TOTAL DIRECT	17	546	1	2,732	137	3,417

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6717E5
4-435

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS									1.40	1.40	1	1
TOTAL PROJECT EQUIPMENT HOURS											1	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6717

TIME 15:16:58

BOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	17	546
TOTAL PROJECT MANHOURS								17	546

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6720

BUILDING USE: _____

HOURS/DAY: 18

DAYS/WEEK: 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @ 48 W/FXT = 0 WATTS

0 1 LAMP @ 37.8 W/FXT = 0 WATTS

0 2 LAMP @ 96 W/FXT = 0 WATTS

0 2 LAMP @ 75.6 W/FXT = 0 WATTS

0 3 LAMP @ 144 W/FXT = 0 WATTS

0 3 LAMP @ 113.4 W/FXT = 0 WATTS

40 4 LAMP @ 192 W/FXT = 7680 WATTS

0 4 LAMP @ 151.2 W/FXT = 0 WATTS

2 FOOT

0 1 LAMP @ 31 W/FXT = 0 WATTS

0 4 LAMP @ 88 W/FXT = 0 WATTS

0 2 LAMP U @ 96 W/FXT = 0 WATTS

0 2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FXT = 0 WATTS

0 2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 7.7

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FXT = 0 WATTS

0 1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS

0 2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

40 2 LAMP W/ REFLECTORS 58 W/FXT = 2320 WATTS

2 FOOT

0 1 LAMP @ 24 W/FXT = 0 WATTS

0 2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS

0 2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 2.3

NET ENERGY SAVINGS 85.6 MBTU/YR

NET DOLLAR SAVINGS \$1,287.98

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6720

LAMP USE:

HOURS/DAY 5

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @	25 WATTS =	0 WATTS
0 LAMPS @	40 WATTS =	0 WATTS
0 LAMPS @	52 WATTS =	0 WATTS
3 LAMPS @	60 WATTS =	180 WATTS
0 LAMPS @	75 WATTS =	0 WATTS
0 LAMPS @	90 WATTS =	0 WATTS
0 LAMPS @	100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 180

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @	7 WATTS =	0 WATTS
0 LAMPS @	9 WATTS =	0 WATTS
3 LAMPS @	18 WATTS =	39 WATTS
0 LAMPS @	18 WATTS =	0 WATTS
0 LAMPS @	26 WATTS =	0 WATTS

TOTAL REPLACEMENT WATTS 39

NET ENERGY SAVINGS 0.62 MBTU/YR

NET DOLLAR SAVINGS \$3.87

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:23:55

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6720

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-440

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

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AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6720
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:23:55

TAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)									
CD=3 EL 6105 SURF SQ W/1 13W BIAxIAL FL LAMP *** UNIT COSTS: ***	1.25				41.26	0.00	27.80	1.39	70.45
WC=1100 WHITE ACRYLIC LENS 3.00 EA EELEA	4				124	0	83	4	211
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ *** UNIT COSTS: ***	0.59				19.42	0.08	136.00	6.80	162.29
WC=1100 REFLECTOR 40.00 EA EELEB	24				777	3	5,440	272	6,492
TOTAL DIVISION 16 ELECTRICAL	27				900	3	5,523	276	6,703
TOTAL FACILITY AA. ELECTRICAL	27				900	3	5,523	276	6,703
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	27				900	3	5,523	276	6,703
TOTAL BASE BID	27				900	3	5,523	276	6,703
TOTAL ADDITIVE	0				0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	27				900	3	5,523	276	6,703

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
 4-442

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

SUMMARY PAGE 1

PROJECT NOTES

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-443

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:58

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OPC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	6,703	10.0% 670	0.0% 0	7.5% 553	2.5% 198	0.0% 0	8,125	8124.58
BID ITEM TOTAL		1.00 EA	6,703	670	0	553	198	0	8,125	8124.58
TOTAL BASE BID			6,703	670	0	553	198	0	8,125	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			6,703	670	0	553	198	0	8,125	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-444

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:51

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00 EA	8,125		8,125	8124.60
	TOTAL CURRENT CONTRACT COST		8,125	0	8,125	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		8,125	0	8,125	
	Government-Furnished Property		0		0	
	SUBTOTAL		8,125	0	8,125	
	Contingencies	10.0%	812	0	812	
	SUBTOTAL		8,937	0	8,937	
	SIOH (S&A)	5.0%	447	0	447	
	CURRENT WORKING ESTIMATE		9,384	0	9,384	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5

4-445

Mon 30 Aug 1993

- U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	27	900	3	5,800	6,703 100.0%	0	6,703
	TOTAL DIRECT				27	900	3	5,800	6,703 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-446

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	BOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		6,703	670	10.0%	0.0		553	7.5%	2.5%	0.0%		8,125	100.0%		8124.57
	TOTAL OVERHEAD & PROFIT			670	10.0%			553	7.5%							

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	27	900	3	5,523	276	6,703
TOTAL DIRECT	27	900	3	5,523	276	6,703

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-448

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	27	900	3	5,523	276	6,703
TOTAL DIRECT	27	900	3	5,523	276	6,703

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6720E5
4-449

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:55

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	2	3
TOTAL PROJECT EQUIPMENT HOURS										2	3

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6720

TIME 15:23:51

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	27	900
TOTAL PROJECT MANHOURS								27	900

*** END OF SUMMARY REPORT ***

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6723

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @	48 W/FXT =	0 WATTS
0.1 LAMP @	37.8 W/FXT =	0 WATTS
0.2 LAMP @	96 W/FXT =	576 WATTS
0.2 LAMP @	75.6 W/FXT =	0 WATTS
0.3 LAMP @	144 W/FXT =	0 WATTS
0.3 LAMP @	113.4 W/FXT =	0 WATTS
27.4 LAMP @	192 W/FXT =	5184 WATTS
0.4 LAMP @	151.2 W/FXT =	0 WATTS

2 FOOT

0.1 LAMP @	31 W/FXT =	0 WATTS
0.4 LAMP @	88 W/FXT =	0 WATTS
0.2 LAMP U @	96 W/FXT =	0 WATTS
0.2 LAMP U @	75.6 W/FXT =	0 WATTS

8 FOOT

0.2 LAMP @	180 W/FXT =	0 WATTS
0.2 LAMP @	168 W/FXT =	0 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @	37 W/FXT =	0 WATTS
6.1 LAMP W/ REFLECTORS	37 W/FXT =	222 WATTS
0.2 LAMP W/ REFLECTORS	58 W/FXT =	0 WATTS
27.2 LAMP W/ REFLECTORS	58 W/FXT =	1566 WATTS

2 FOOT

0.1 LAMP @	24 W/FXT =	0 WATTS
0.2 LAMP W/ REFLECTORS	41 W/FXT =	0 WATTS
0.2 LAMP U @	58 W/FXT =	0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS	58 W/FXT =	0 WATTS
------------------------	------------	---------

TOTAL EXISTING KW

5.8

TOTAL REPLACEMENT KW

1.8

NET ENERGY SAVINGS

31.7 MBTU/YR

NET DOLLAR SAVINGS

\$757.97

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6723

LAMP USE:

HOURS/DAY 3

DAYS/WEEK 5

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS
0 LAMPS @ 52 WATTS =	0 WATTS
0 LAMPS @ 60 WATTS =	0 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS
0 LAMPS @ 90 WATTS =	0 WATTS
4 LAMPS @ 100 WATTS =	400 WATTS
TOTAL EXISTING WATTS	400

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 9 WATTS =	0 WATTS
0 LAMPS @ 13 WATTS =	0 WATTS
0 LAMPS @ 18 WATTS =	0 WATTS
4 LAMPS @ 26 WATTS =	104 WATTS
TOTAL REPLACEMENT WATTS	104

NET ENERGY SAVINGS 0.78 MBTU/YR

NET DOLLAR SAVINGS \$4.88

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:44:38

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6723

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5

4-454

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:30

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:44:36

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6107	SURF SQ W/1 26W BIAXIAL FL LAMP	*** UNIT COSTS: ***			1.25	41.26	0.00	31.00	1.55	73.81
WC=1100	WHITE ACRYLIC LENS	4.00 EA EELEA		5		165	0	124	6	295
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	6.00 EA EELEB		3		107	0	732	37	876
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	27.00 EA EELEB		16		524	2	3,672	184	4,382
TOTAL DIVISION 16 ELECTRICAL					24	796	2	4,528	226	5,553
TOTAL FACILITY AA. ELECTRICAL					24	796	2	4,528	226	5,553
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					24	796	2	4,528	226	5,553
TOTAL BASE BID					24	796	2	4,528	226	5,553
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					24	796	2	4,528	226	5,553

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5
4-456

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:30

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 1

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OPC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL			10.0%	0.0%	7.5%	2.5%	0.0%		
		1.00 EA	5,553	555	0	458	164	0	6,731	6730.90
BID ITEM TOTAL		1.00 EA	5,553	555	0	458	164	0	6,731	6730.90
TOTAL BASE BID			5,553	555	0	458	164	0	6,731	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			5,553	555	0	458	164	0	6,731	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5

4-458

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1. BUILDING TO THE 5 FOOT LINE	1.00 EA	6,731		6,731	6730.90
TOTAL CURRENT CONTRACT COST		6,731	0	6,731	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
ESCALATED CONTRACT COST		6,731	0	6,731	
Government-Furnished Property		0		0	
SUBTOTAL		6,731	0	6,731	
Contingencies	10.0%	673	0	673	
SUBTOTAL		7,404	0	7,404	
SIOH (S&A)	5.0%	370	0	370	
CURRENT WORKING ESTIMATE		7,774	0	7,774	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5
4-459

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	DOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	SUBCON	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	24	796	2	4,754		5,553	100.0%		0	5,553
	TOTAL DIRECT				24	796	2	4,754		5,553	100.0%			

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS H-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		5,553	555	10.0%	0.0		458	7.5%	2.5%	0.0%		6,731	100.0%		6730.89
	TOTAL OVERHEAD & PROFIT			555	10.0%			458	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5

4-461

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	24	796	2	4,528	226	5,553
TOTAL DIRECT	24	796	2	4,528	226	5,553

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5
4-462

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	24	796	2	4,528	226	5,553
TOTAL DIRECT	24	796	2	4,528	226	5,553

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6723E5

4-463

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	2	2
TOTAL PROJECT EQUIPMENT HOURS										2	2

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6723

TIME 15:44:36

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	ERLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	24	796
TOTAL PROJECT MANHOURS								24	796

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6729

BUILDING USE: _____

HOURS/DAY: 10

DAYS/WEEK: 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FIXT = 0 WATTS

0.1 LAMP @ 37.8 W/FIXT = 0 WATTS

45.2 LAMP @ 96 W/FIXT = 4320 WATTS

0.2 LAMP @ 75.6 W/FIXT = 0 WATTS

0.3 LAMP @ 144 W/FIXT = 0 WATTS

0.3 LAMP @ 113.4 W/FIXT = 0 WATTS

1.4 LAMP @ 192 W/FIXT = 192 WATTS

0.4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0.1 LAMP @ 31 W/FIXT = 0 WATTS

0.4 LAMP @ 88 W/FIXT = 0 WATTS

0.2 LAMP U @ 96 W/FIXT = 0 WATTS

0.2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FIXT = 0 WATTS

0.2 LAMP @ 168 W/FIXT = 0 WATTS

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FIXT = 0 WATTS

45.1 LAMP W/ REFLECTORS 37 W/FIXT = 1665 WATTS

0.2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

1.2 LAMP W/ REFLECTORS 58 W/FIXT = 58 WATTS

2 FOOT

0.1 LAMP @ 24 W/FIXT = 0 WATTS

0.2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS

0.2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL EXISTING KW

4.5

TOTAL REPLACEMENT KW

1.7

NET ENERGY SAVINGS

24.7 MBTU/YR

NET DOLLAR SAVINGS

\$547.55

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:37:26

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 6729

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6729E5
4-467

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

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DETAILED ESTIMATE	DETAIL PAGE
1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6729
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:37:26

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		45.00 EA EELEB		24		803	3	5,490	275	6,571
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100		1.00 EA EELEB		1		19	0	136	7	162
TOTAL DIVISION 16 ELECTRICAL					25	822	3	5,626	281	6,733
TOTAL FACILITY AA. ELECTRICAL					25	822	3	5,626	281	6,733
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					25	822	3	5,626	281	6,733
TOTAL BASE BID					25	822	3	5,626	281	6,733
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					25	822	3	5,626	281	6,733

*** END OF DETAIL REPORT ***

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6729E5

4-469

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER PCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	6,733	10.0% 673	0.0% 0	7.5% 555	2.5% 199	0.0% 0	8,161	8160.66
BID ITEM TOTAL		1.00 EA	6,733	673	0	555	199	0	8,161	8160.66
TOTAL BASE BID			6,733	673	0	555	199	0	8,161	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			6,733	673	0	555	199	0	8,161	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 6729

TIME 15:37:26

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	8,161		8,161	8160.70
	TOTAL CURRENT CONTRACT COST			8,161	0	8,161	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			8,161	0	8,161	
	Government-Furnished Property			0		0	
	SUBTOTAL			8,161	0	8,161	
	Contingencies	10.0%		816	0	816	
	SUBTOTAL			8,977	0	8,977	
	SIOH (S&A)	5.0%		449	0	449	
	CURRENT WORKING ESTIMATE			9,426	0	9,426	
	Estimated Construction Time	365	Days				

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:20

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT AMOUNT PCT	** SUBCON W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	25	822	3	5,907		6,733 100.0%	0	6,733
	TOTAL DIRECT				25	822	3	5,907		6,733 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6729E5

4-473

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD *** AMOUNT	PCT	HOPC%	**** PROFIT **** AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT ***** AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		6,733	673	10.0%	0.0	555	7.5%	2.5%	0.0%	8,161	100.0%	8160.67
	TOTAL OVERHEAD & PROFIT			673	10.0%		555	7.5%					

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	25	822	3	5,626	281	6,733
TOTAL DIRECT	25	822	3	5,626	281	6,733

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 6729E5

4-475

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:2

SYSTEMS SUMMARY

SUMMARY PAGE

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	25	822	3	5,626	281	6,733
TOTAL DIRECT	25	822	3	5,626	281	6,733

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	2	3
TOTAL PROJECT EQUIPMENT HOURS										2	3

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 6729

TIME 15:37:26

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	25	823
TOTAL PROJECT MANHOURS								25	823

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7510

BUILDING USE:

HOURS/DAY 11

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

2 1 LAMP @	48 W/FXT =	96 WATTS	2 1 LAMP @	37 W/FXT =	74 WATTS
0 1 LAMP @	37.8 W/FXT =	0 WATTS			
265 2 LAMP @	96 W/FXT =	25440 WATTS	265 1 LAMP W/	37 W/FXT =	9805 WATTS
0 2 LAMP @	75.6 W/FXT =	0 WATTS	REFLECTORS		
0 3 LAMP @	144 W/FXT =	0 WATTS	0 2 LAMP W/	58 W/FXT =	0 WATTS
0 3 LAMP @	113.4 W/FXT =	0 WATTS	REFLECTORS		
0 4 LAMP @	192 W/FXT =	0 WATTS	45 2 LAMP W/	58 W/FXT =	2610 WATTS
45 4 LAMP @	151.2 W/FXT =	6804 WATTS	REFLECTORS		

2 FOOT

0 1 LAMP @	31 W/FXT =	0 WATTS	0 1 LAMP @	24 W/FXT =	0 WATTS
0 4 LAMP @	88 W/FXT =	0 WATTS	0 2 LAMP W/	41 W/FXT =	0 WATTS
			REFLECTORS		
0 2 LAMP U @	96 W/FXT =	0 WATTS	2 2 LAMP U @	58 W/FXT =	116 WATTS
2 2 LAMP U @	75.6 W/FXT =	151.2 WATTS			

8 FOOT

0 2 LAMP @	180 W/FXT =	0 WATTS	0 1 LAMP W/	58 W/FXT =	0 WATTS
0 2 LAMP @	168 W/FXT =	0 WATTS	REFLECTORS		

TOTAL EXISTING KW 32.5

TOTAL REPLACEMENT KW 12.6

NET ENERGY SAVINGS 194.1 MBTU/YR

NET DOLLAR SAVINGS \$4,013.44

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 2

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: 7510

EXIT SIGNS 1

CURRENT WATTAGE 40

REPLACEMENT WATTAGE 3

HOURS/YEAR 8760

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS 1.10 MBTU/YR

NET DOLLAR SAVINGS \$12.08

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 08:07:34

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7510

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5
4-481

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

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Tue 31 Aug 1993

- U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7510
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 08:07:34

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7001	4 FT 1 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***			0.57	18.86	0.07	105.25	5.26	129.45
WC=1100		2.00 EA EELEB		1		38	0	211	11	259
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100		265.00 EA EELEB		143		4,728	18	32,330	1,617	38,693
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/ REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100		45.00 EA EELEB		26		874	3	6,120	306	7,303
CD=3 EL 7006	2 FT 2 LAMP U PARABOLIC LOUVRE	*** UNIT COSTS: ***			0.52	17.19	0.07	119.00	5.95	142.21
WC=1100		2.00 EA EELEB		1		34	0	238	12	284
16530 1100 SURFACE OR PENDANT MOUNTED										
CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	*** UNIT COSTS: ***			1.25	41.26	0.00	121.45	6.07	168.79
WC=1100		1.00 EA EELEA		1		41	0	121	6	169
TOTAL DIVISION 16 ELECTRICAL						173	5,716	22	39,020	1,951 46,709
TOTAL FACILITY AA. ELECTRICAL						173	5,716	22	39,020	1,951 46,709
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE						173	5,716	22	39,020	1,951 46,709
TOTAL BASE BID						173	5,716	22	39,020	1,951 46,709
TOTAL ADDITIVE						0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY						173	5,716	22	39,020	1,951 46,709

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5

4-483

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5

4-484

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	46,709	10.0% 4,671	0.0% 0	7.5% 3,853	2.5% 1,381	0.0% 0	56,614	56613.94
BID ITEM TOTAL		1.00 EA	46,709	4,671	0	3,853	1,381	0	56,614	56613.94
TOTAL BASE BID			46,709	4,671	0	3,853	1,381	0	56,614	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			46,709	4,671	0	3,853	1,381	0	56,614	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5

4-485

Tue 31 Aug 1993

- U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	56,614		56,614	56613.90
	TOTAL CURRENT CONTRACT COST			56,614	0	56,614	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			56,614	0	56,614	
	Government-Furnished Property			0		0	
	SUBTOTAL			56,614	0	56,614	
	Contingencies	10.0%		5,661	0	5,661	
	SUBTOTAL			62,275	0	62,275	
	SIOH (S&A)	5.0%		3,114	0	3,114	
	CURRENT WORKING ESTIMATE			65,389	0	65,389	
	Estimated Construction Time	365	Days				

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

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CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	173	5,716	22	40,971	46,709 100.0%	0	46,709
	TOTAL DIRECT				173	5,716	22	40,971	46,709 100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5

4-487

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
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CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PK	SUBTOTAL	*** OVERHEAD *** AMOUNT	PCT	HOFC%	**** PROFIT **** AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT ***** AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		46,709	4,671	10.0%	0.0	3,853	7.5%	2.5%	0.0%	56,614	100.0%	56613.92
	TOTAL OVERHEAD & PROFIT			4,671	10.0%		3,853	7.5%					

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

1 DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	173	5,716	22	39,020	1,951	46,709
TOTAL DIRECT	173	5,716	22	39,020	1,951	46,709

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5
4-489

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	173	5,716	22	39,020	1,951	46,709
TOTAL DIRECT	173	5,716	22	39,020	1,951	46,709

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7510E5
4-490

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

TIME 08:07:34

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	16	22
TOTAL PROJECT EQUIPMENT HOURS										16	22

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7510

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LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	173	5,717
TOTAL PROJECT MANHOURS								173	5,717

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 2

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7514

BUILDING USE:

HOURS/DAY 5

DAYS/WEEK 1

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 16.2 LAMP @ 96 W/FXT = 1536 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 0.4 LAMP @ 151.2 W/FXT = 0 WATTS

2 FOOT

4.1 LAMP @ 31 W/FXT = 124 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW

1.7

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 16.1 LAMP W/ REFLECTORS 37 W/FXT = 592 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

2 FOOT

4.1 LAMP @ 24 W/FXT = 96 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW

0.7

NET ENERGY SAVINGS

0.9 MBTU/YR

NET DOLLAR SAVINGS

\$5.34

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 2 OF 2

31 AUGUST 1993

BUILDING WIDE INCANDESCENT LAMP REPLACEMENT

BUILDING #: 7514

LAMP USE:

HOURS/DAY 5

DAYS/WEEK 1

PEAK USE 2 (1-YES, 2-NO)

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$0.00 PER KW

EXISTING INCANDESCENTS

0 LAMPS @ 25 WATTS =	0 WATTS
0 LAMPS @ 40 WATTS =	0 WATTS
0 LAMPS @ 52 WATTS =	0 WATTS
22 LAMPS @ 60 WATTS =	1320 WATTS
0 LAMPS @ 75 WATTS =	0 WATTS
1 LAMPS @ 90 WATTS =	90 WATTS
0 LAMPS @ 100 WATTS =	0 WATTS

TOTAL EXISTING WATTS 1410

COMPACT FLUORESCENT REPLACEMENT

0 LAMPS @ 7 WATTS =	0 WATTS
0 LAMPS @ 9 WATTS =	0 WATTS
22 LAMPS @ 13 WATTS =	286 WATTS
0 LAMPS @ 18 WATTS =	0 WATTS
1 LAMPS @ 26 WATTS =	26 WATTS

TOTAL REPLACEMENT WATTS 312

NET ENERGY SAVINGS 0.97 MBTU/YR

NET DOLLAR SAVINGS \$6.04

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:57:49

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7514

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93

Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7514E5
4-495

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

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DETAILED ESTIMATE

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Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7514
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:57:49

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTY	DIRECT \$
16500 LIGHTING										
16512 6100 SMALL FL FIXTURES (LESS THAN 40 WATT LAMPS)										
CD=3 EL 6105	SURF SQ W/1 13W BIAXIAL FL LAMP	***	UNIT COSTS: ***	1.25	41.26	0.00	27.80	1.39	70.45	
WC=1100	WHITE ACRYLIC LENS	22.00	EA EELEA	28	908	0	612	31	1,550	
CD=3 EL 6107	SURF SQ W/1 26W BIAXIAL FL LAMP	***	UNIT COSTS: ***	1.25	41.26	0.00	31.00	1.55	73.81	
WC=1100	WHITE ACRYLIC LENS	1.00	EA EELEA	1	41	0	31	2	74	
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	***	UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01	
WC=1100	REFLECTOR	16.00	EA EELEB	9	285	1	1,952	98	2,336	
CD=3 EL 7004	2 FT 1 LAMP	***	UNIT COSTS: ***	0.55	18.09	0.07	83.50	4.18	105.83	
WC=1100		4.00	EA EELEB	2	72	0	334	17	423	
TOTAL DIVISION 16 ELECTRICAL					40	1,307	1	2,929	146	4,383
TOTAL FACILITY AA. ELECTRICAL					40	1,307	1	2,929	146	4,383
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					40	1,307	1	2,929	146	4,383
TOTAL BASE BID					40	1,307	1	2,929	146	4,383
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					40	1,307	1	2,929	146	4,383

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7514E5
 4-497

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	4,383	438	0	362	130	0	5,313	5312.85
BID ITEM TOTAL	1.00 EA	4,383	438	0	362	130	0	5,313	5312.85
TOTAL BASE BID		4,383	438	0	362	130	0	5,313	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		4,383	438	0	362	130	0	5,313	

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1. BUILDING TO THE 5 FOOT LINE	1.00 EA	5,313		5,313	5312.80
TOTAL CURRENT CONTRACT COST		5,313	0	5,313	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
ESCALATED CONTRACT COST		5,313	0	5,313	
Government-Furnished Property		0		0	
SUBTOTAL		5,313	0	5,313	
Contingencies	10.0%	531	0	531	
SUBTOTAL		5,844	0	5,844	
SIOH (S&A)	5.0%	292	0	292	
CURRENT WORKING ESTIMATE		6,136	0	6,136	

Estimated Construction Time 365 Days

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	DOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	40	1,307	1	3,075		4,383 100.0%	0	4,383
	TOTAL DIRECT				40	1,307	1	3,075		4,383 100.0%		

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:4

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		4,383	438	10.0%	0.0		362	7.5%	2.5%	0.0%		5,313	100.0%		5312.8
	TOTAL OVERHEAD & PROFIT			438	10.0%			362	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7514E5

4-502

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

I DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	40	1,307	1	2,929	146	4,383
TOTAL DIRECT	40	1,307	1	2,929	146	4,383

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7514E5
4-503

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	40	1,307	1	2,929	146	4,383
TOTAL DIRECT	40	1,307	1	2,929	146	4,383

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7514E5
4-504

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	1	1
TOTAL PROJECT EQUIPMENT HOURS										1	1

Mon 30 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7514

TIME 15:57:49

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	**** TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	40	1,307
TOTAL PROJECT MANHOURS								40	1,307

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 4

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7541

BUILDING USE:

HOURS/DAY 16

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
 0.1 LAMP @ 37.8 W/FXT = 0 WATTS
 0.2 LAMP @ 96 W/FXT = 0 WATTS
 0.2 LAMP @ 75.6 W/FXT = 0 WATTS
 0.3 LAMP @ 144 W/FXT = 0 WATTS
 0.3 LAMP @ 113.4 W/FXT = 0 WATTS
 0.4 LAMP @ 192 W/FXT = 0 WATTS
 131 4 LAMP @ 151.2 W/FXT = 19807 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
 0.4 LAMP @ 88 W/FXT = 0 WATTS
 0.2 LAMP U @ 96 W/FXT = 0 WATTS
 0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
 0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW 19.8

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
 0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
 131 2 LAMP W/ REFLECTORS 58 W/FXT = 7598 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
 0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
 0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW 7.6

NET ENERGY SAVINGS 173.3 MBTU/YR

NET DOLLAR SAVINGS \$2,799.60

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 2 OF 4

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7541
AREA: OFFICE

AREA USE:
HOURS/DAY 16
DAYS/WEEK 5

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 LAMP @ 48 W/FIXT = 0 WATTS
1 LAMP @ 37.8 W/FIXT = 0 WATTS
2 LAMP @ 96 W/FIXT = 0 WATTS
2 LAMP @ 75.6 W/FIXT = 0 WATTS
3 LAMP @ 144 W/FIXT = 0 WATTS
3 LAMP @ 113.4 W/FIXT = 0 WATTS
4 LAMP @ 192 W/FIXT = 0 WATTS
2 4 LAMP @ 151.2 W/FIXT = 302.4 WATTS

2 FOOT

1 LAMP @ 31 W/FIXT = 0 WATTS
4 LAMP @ 88 W/FIXT = 0 WATTS
2 LAMP U @ 96 W/FIXT = 0 WATTS
2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

2 LAMP @ 180 W/FIXT = 0 WATTS
2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.302

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 2 LAMP @ 58 W/FIXT = 0 WATTS
2 2 LAMP @ 58 W/FIXT = 116 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
0 2 LAMP @ 41 W/FIXT = 0 WATTS
0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.116

NET ENERGY SAVINGS 2.64 MBTU/YR

NET DOLLAR SAVINGS \$42.74

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 3 OF 4

OVERLIT AREA FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7541
AREA: RESTROOM

AREA USE:
HOURS/DAY 16
DAYS/WEEK 5

ELECTRIC COSTS:
ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

1 LAMP @ 48 W/FIXT = 0 WATTS
1 LAMP @ 37.8 W/FIXT = 0 WATTS
2 LAMP @ 96 W/FIXT = 0 WATTS
2 LAMP @ 75.6 W/FIXT = 0 WATTS
3 LAMP @ 144 W/FIXT = 0 WATTS
3 LAMP @ 113.4 W/FIXT = 0 WATTS
4 LAMP @ 192 W/FIXT = 0 WATTS
2 4 LAMP @ 151.2 W/FIXT = 302.4 WATTS

2 FOOT

1 LAMP @ 31 W/FIXT = 0 WATTS
4 LAMP @ 88 W/FIXT = 0 WATTS
2 LAMP U @ 96 W/FIXT = 0 WATTS
2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

2 LAMP @ 180 W/FIXT = 0 WATTS
2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.302

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 1 LAMP @ 37 W/FIXT = 0 WATTS
0 2 LAMP @ 58 W/FIXT = 0 WATTS
2 2 LAMP @ 58 W/FIXT = 116 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
0 2 LAMP @ 41 W/FIXT = 0 WATTS
0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP @ 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.116

NET ENERGY SAVINGS 2.64 METU/YR

NET DOLLAR SAVINGS \$42.74

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 6: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 4 OF 4

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: 7541

EXIT SIGNS 10

CURRENT WATTAGE 40

REPLACEMENT WATTAGE 3

HOURS/YEAR 8760

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

NET ENERGY SAVINGS 11.0 MBTU/YR

NET DOLLAR SAVINGS \$120.82

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 08:14:14

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7541

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

M - C A C E S E D I T I O N
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Release 4.20

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-511

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

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DETAILED ESTIMATE

DETAIL PAGE

1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7541
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 08:14:14

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7003	4 FT 2 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
WC=1100	REFLECTOR	127.00 EA EELEB		75	2,466	10	17,272	864	20,611	
CD=3 EL 7008	4 FT 2 LAMP PARABOLIC LOUVRE	*** UNIT COSTS: ***			0.50	16.51	0.06	120.00	6.00	142.57
WC=1100		4.00 EA EELEB		2	66	0	480	24	570	
16530 1100 SURFACE OR PENDANT MOUNTED										
CD=3 EL 1118	LED EXIT SIGN W/ BATTERY	*** UNIT COSTS: ***			1.25	41.26	0.00	121.45	6.07	168.79
WC=1100		10.00 EA EELEA		13	413	0	1,215	61	1,688	
TOTAL DIVISION 16 ELECTRICAL					89	2,945	10	18,967	948	22,869
TOTAL FACILITY AA. ELECTRICAL					89	2,945	10	18,967	948	22,869
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					89	2,945	10	18,967	948	22,869
TOTAL BASE BID					89	2,945	10	18,967	948	22,869
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					89	2,945	10	18,967	948	22,869

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-513

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7541

TIME 08:14:14

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	22,869	10.0% 2,287	0.0% 0	7.5% 1,887	2.5% 676	0.0% 0	27,719 27719.15
BID ITEM TOTAL		1.00 EA	22,869	2,287	0	1,887	676	0	27,719 27719.15
TOTAL BASE BID			22,869	2,287	0	1,887	676	0	27,719
TOTAL ADDITIVE			0	0	0	0	0	0	0
TOTAL INCL ADD			22,869	2,287	0	1,887	676	0	27,719

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
 4-515

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00	EA	27,719		27,719	27719.20
	TOTAL CURRENT CONTRACT COST			27,719	0	27,719	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			27,719	0	27,719	
	Government-Furnished Property			0		0	
	SUBTOTAL			27,719	0	27,719	
	Contingencies	10.0%		2,772	0	2,772	
	SUBTOTAL			30,491	0	30,491	
	SIOH (S&A)	5.0%		1,525	0	1,525	
	CURRENT WORKING ESTIMATE			32,016	0	32,016	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-516

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	89	2,945	10	19,915		22,869	100.0%	0	22,869
	TOTAL DIRECT				89	2,945	10	19,915		22,869	100.0%		

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		22,869	2,287	10.0%	0.0		1,887	7.5%	2.5%	0.0%		27,719	100.0%		27719.15
	TOTAL OVERHEAD & PROFIT			2,287	10.0%			1,887	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-518

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:1-

SI DIVISION SUMMARY

SUMMARY PAGE 1

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	89	2,945	10	18,967	948	22,869
TOTAL DIRECT	89	2,945	10	18,967	948	22,869

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-519

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	89	2,945	10	18,967	948	22,869
TOTAL DIRECT	89	2,945	10	18,967	948	22,869

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7541E5
4-520

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY	UPB	***** TOTAL *****	
									RATE	RATE	HOURS	COST
EMI20 SMALL TOOLS									1.40	1.40	7	10
TOTAL PROJECT EQUIPMENT HOURS											7	10

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7541

TIME 08:14:14

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	89	2,944
TOTAL PROJECT MANHOURS								89	2,944

*** END OF SUMMARY REPORT ***

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7543

BUILDING USE:

HOURS/DAY 9

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @	48 W/FIXT =	0 WATTS	0 1 LAMP @	37 W/FIXT =	0 WATTS
0 1 LAMP @	37.8 W/FIXT =	0 WATTS	2 1 LAMP W/	37 W/FIXT =	74 WATTS
2 2 LAMP @	96 W/FIXT =	192 WATTS	REFLECTORS		
0 2 LAMP @	75.6 W/FIXT =	0 WATTS	0 2 LAMP W/	58 W/FIXT =	0 WATTS
0 3 LAMP @	144 W/FIXT =	0 WATTS	REFLECTORS		
0 3 LAMP @	113.4 W/FIXT =	0 WATTS	0 2 LAMP W/	58 W/FIXT =	0 WATTS
0 4 LAMP @	192 W/FIXT =	0 WATTS	REFLECTORS		
0 4 LAMP @	151.2 W/FIXT =	0 WATTS			

2 FOOT

0 1 LAMP @	31 W/FIXT =	0 WATTS	0 1 LAMP @	24 W/FIXT =	0 WATTS
0 4 LAMP @	88 W/FIXT =	0 WATTS	0 2 LAMP W/	41 W/FIXT =	0 WATTS
			REFLECTORS		
0 2 LAMP U @	96 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
0 2 LAMP U @	75.6 W/FIXT =	0 WATTS			

8 FOOT

0 2 LAMP @	180 W/FIXT =	0 WATTS	3 1 LAMP W/	58 W/FIXT =	174 WATTS
3 2 LAMP @	168 W/FIXT =	504 WATTS	REFLECTORS		

TOTAL EXISTING KW

0.7

TOTAL REPLACEMENT KW

0.2

NET ENERGY SAVINGS

3.6 MBTU/YR

NET DOLLAR SAVINGS

\$85.49

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 08:20:51

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7543

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

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Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7543
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 08:20:51

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL		QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING										
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST										
CD=3 EL 7002	4 FT 1 LAMP PARABOLIC LOUVRE W/	*** UNIT COSTS: ***			0.54	17.84	0.07	122.00	6.10	146.01
WC=1100	REFLECTOR	2.00 EA EELEB		1	36	0	0	244	12	292
CD=3 EL 7007	8 FT 1 LAMP W/ REFLECTOR	*** UNIT COSTS: ***			0.54	17.84	0.07	109.00	5.45	132.36
WC=1100		3.00 EA EELEB		2	54	0	0	327	16	397
TOTAL DIVISION 16 ELECTRICAL					3	89	0	571	29	689
TOTAL FACILITY AA. ELECTRICAL					3	89	0	571	29	689
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE					3	89	0	571	29	689
TOTAL BASE BID					3	89	0	571	29	689
TOTAL ADDITIVE					0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY					3	89	0	571	29	689

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5
 4-526

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:51

PROJECT NOTES

SUMMARY PAGE

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	689	69	0	57	20	0	835	835.26
BID ITEM TOTAL	1.00 EA	689	69	0	57	20	0	835	835.26
TOTAL BASE BID		689	69	0	57	20	0	835	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		689	69	0	57	20	0	835	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5

4-528

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	835		835	835.30
	TOTAL CURRENT CONTRACT COST			835	0	835	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			835	0	835	
	Government-Furnished Property			0		0	
	SUBTOTAL			835	0	835	
	Contingencies	10.0%		84	0	84	
	SUBTOTAL			919	0	919	
	SIOH (S&A)	5.0%		46	0	46	
	CURRENT WORKING ESTIMATE			965	0	965	
	Estimated Construction Time	365	Days				

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5
4-529

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:51

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	3	89	0	600		689	100.0%	0	689
	TOTAL DIRECT				3	89	0	600		689	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5

4-530

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS H-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOF%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		689	69	10.0%	0.0		57	7.5%	2.5%	0.0%		835	100.0%		835.25
	TOTAL OVERHEAD & PROFIT			69	10.0%			57	7.5%							

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	3	89	0	571	29	689
TOTAL DIRECT	3	89	0	571	29	689

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5
4-532

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	3	89	0	571	29	689
TOTAL DIRECT	3	89	0	571	29	689

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7543E5
4-533

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:55

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	UPB	HOURS	TOTAL	COST
EMI20 SMALL TOOLS								1.40	1.40	0	0	0
TOTAL PROJECT EQUIPMENT HOURS										0	0	0

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7543

TIME 08:20:5

LABOR SUMMARY

SUMMARY PAGE

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	3	89
TOTAL PROJECT MANHOURS								3	89

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7562

BUILDING USE:

HOURS/DAY 2
DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH
DEMAND CHARGE \$0.00 PER KW

EXISTING FIXTURE DATA

4 FOOT

0.1 LAMP @ 48 W/FXT = 0 WATTS
0.1 LAMP @ 37.8 W/FXT = 0 WATTS
0.2 LAMP @ 96 W/FXT = 0 WATTS
0.2 LAMP @ 75.6 W/FXT = 0 WATTS
0.3 LAMP @ 144 W/FXT = 0 WATTS
0.3 LAMP @ 113.4 W/FXT = 0 WATTS
0.4 LAMP @ 192 W/FXT = 0 WATTS
17.4 LAMP @ 151.2 W/FXT = 2570.4 WATTS

2 FOOT

0.1 LAMP @ 31 W/FXT = 0 WATTS
0.4 LAMP @ 88 W/FXT = 0 WATTS
0.2 LAMP U @ 96 W/FXT = 0 WATTS
0.2 LAMP U @ 75.6 W/FXT = 0 WATTS

8 FOOT

0.2 LAMP @ 180 W/FXT = 0 WATTS
0.2 LAMP @ 168 W/FXT = 0 WATTS

TOTAL EXISTING KW

2.6

REPLACEMENT FIXTURE DATA

4 FOOT

0.1 LAMP @ 37 W/FXT = 0 WATTS
0.1 LAMP W/ REFLECTORS 37 W/FXT = 0 WATTS
0.2 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS
17.2 LAMP W/ REFLECTORS 58 W/FXT = 986 WATTS

2 FOOT

0.1 LAMP @ 24 W/FXT = 0 WATTS
0.2 LAMP W/ REFLECTORS 41 W/FXT = 0 WATTS
0.2 LAMP U @ 58 W/FXT = 0 WATTS

8 FOOT

0.1 LAMP W/ REFLECTORS 58 W/FXT = 0 WATTS

TOTAL REPLACEMENT KW

1.0

NET ENERGY SAVINGS

2.8 MBTU/YR

NET DOLLAR SAVINGS

\$17.42

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 08:29:47

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7562

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7562E5

4-537

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

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Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: BUILDING 7562
 1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 08:29:47

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7003 4 FT 2 LAMP PARABOLIC LOUVRE W/ WC=1100 REFLECTOR	*** UNIT COSTS: ***			0.59	19.42	0.08	136.00	6.80	162.29
	17.00 EA EELEB			10	330	1	2,312	116	2,759
TOTAL DIVISION 16 ELECTRICAL				10	330	1	2,312	116	2,759
TOTAL FACILITY AA. ELECTRICAL				10	330	1	2,312	116	2,759
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				10	330	1	2,312	116	2,759
TOTAL BASE BID				10	330	1	2,312	116	2,759
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				10	330	1	2,312	116	2,759

* * * END OF DETAIL REPORT * * *

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:4

PROJECT NOTES

SUMMARY PAGE :

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	2,759	276	0	228	82	0	3,344	3344.07
<hr/>									
BID ITEM TOTAL	1.00 EA	2,759	276	0	228	82	0	3,344	3344.07
<hr/>									
TOTAL BASE BID		2,759	276	0	228	82	0	3,344	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
<hr/>									
TOTAL INCL ADD		2,759	276	0	228	82	0	3,344	

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	3,344		3,344	3344.10
	TOTAL CURRENT CONTRACT COST			3,344	0	3,344	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			3,344	0	3,344	
	Government-Furnished Property			0		0	
	SUBTOTAL			3,344	0	3,344	
	Contingencies	10.0%		334	0	334	
	SUBTOTAL			3,679	0	3,679	
	SIOH (S&A)	5.0%		184	0	184	
	CURRENT WORKING ESTIMATE			3,862	0	3,862	
	Estimated Construction Time	365	Days				

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	10	330	1	2,428		2,759	100.0%	0	2,759
	TOTAL DIRECT				10	330	1	2,428		2,759	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7562E5

4-543

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

-----		*** OVERHEAD ***	-----		**** PROFIT ****	-----		***** TOTAL CONTRACT *****					
ID	CONTRACTOR	PH	SUBTOTAL	AMOUNT	PCT	HOFC%	AMOUNT	PCT	BOND%	OTHER%	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		2,759	276	10.0%	0.0	228	7.5%	2.5%	0.0%	3,344	100.0%	3344.07
				-----			-----						
				276	10.0%		228	7.5%					
			TOTAL OVERHEAD & PROFIT										

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	10	330	1	2,312	116	2,759
TOTAL DIRECT	10	330	1	2,312	116	2,759

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	10	330	1	2,312	116	2,759
TOTAL DIRECT	10	330	1	2,312	116	2,759

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7562E5

4-546

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

EQUIPMENT SUMMARY

SUMMARY PAGE 8

-----	*** BOOK VALUE ***	ADJ FACTOR	ADJUSTD	BOOK OP	--	HRLY	---	UPB	****	TOTAL	****	
EQUIP DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMI20 SMALL TOOLS									1.40	1.40	1	1
											-----	-----
TOTAL PROJECT EQUIPMENT HOURS											1	1

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7562

TIME 08:29:47

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	10	330
TOTAL PROJECT MANHOURS								10	330

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

BUILDING WIDE FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7574

BUILDING USE:

HOURS/DAY 12

DAYS/WEEK 5

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

EXISTING FIXTURE DATA

4 FOOT

0 1 LAMP @ 48 W/FIXT = 0 WATTS
 0 1 LAMP @ 37.8 W/FIXT = 0 WATTS
 1 2 LAMP @ 96 W/FIXT = 96 WATTS
 0 2 LAMP @ 75.6 W/FIXT = 0 WATTS
 0 3 LAMP @ 144 W/FIXT = 0 WATTS
 0 3 LAMP @ 113.4 W/FIXT = 0 WATTS
 0 4 LAMP @ 192 W/FIXT = 0 WATTS
 0 4 LAMP @ 151.2 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 31 W/FIXT = 0 WATTS
 0 4 LAMP @ 88 W/FIXT = 0 WATTS
 0 2 LAMP U @ 96 W/FIXT = 0 WATTS
 0 2 LAMP U @ 75.6 W/FIXT = 0 WATTS

8 FOOT

0 2 LAMP @ 180 W/FIXT = 0 WATTS
 0 2 LAMP @ 168 W/FIXT = 0 WATTS

TOTAL EXISTING KW 0.1

NET ENERGY SAVINGS 0.6 MBTU/YR

REPLACEMENT FIXTURE DATA

4 FOOT

0 1 LAMP @ 37 W/FIXT = 0 WATTS
 1 1 LAMP W/ REFLECTORS 37 W/FIXT = 37 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

2 FOOT

0 1 LAMP @ 24 W/FIXT = 0 WATTS
 0 2 LAMP W/ REFLECTORS 41 W/FIXT = 0 WATTS
 0 2 LAMP U @ 58 W/FIXT = 0 WATTS

8 FOOT

0 1 LAMP W/ REFLECTORS 58 W/FIXT = 0 WATTS

TOTAL REPLACEMENT KW 0.04

NET DOLLAR SAVINGS \$12.23

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 08:36:19

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: BUILDING 7574

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5
4-550

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

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Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 08:36:19

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16512 7000 FLUORESCENT - RECESSED T8 ELECTRONIC BALLAST									
CD=3 EL 7002 4 FT 1 LAMP PARABOLIC LOUVRE W/ WC=1100 REFLECTOR	***	UNIT COSTS: ***	0.54	17.84	0.07	122.00	6.10	146.01	
	1.00	EA EELEB	1	18	0	122	6	146	
TOTAL DIVISION 16 ELECTRICAL	1			18	0	122	6	146	
TOTAL FACILITY AA. ELECTRICAL	1			18	0	122	6	146	
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE	1			18	0	122	6	146	
TOTAL BASE BID	1			18	0	122	6	146	
TOTAL ADDITIVE	0			0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY	1			18	0	122	6	146	

* * * END OF DETAIL REPORT * * *

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: INTERIOR LIGHTING

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY INTERIOR LIGHTING IN
SELECTED FACILITIES AT FT CAMPBELL.

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY	COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL		10.0%	0.0%	7.5%	2.5%	0.0%		
	1.00 EA	146	15	0	12	4	0	177	176.97
BID ITEM TOTAL	1.00 EA	146	15	0	12	4	0	177	176.97
TOTAL BASE BID		146	15	0	12	4	0	177	
TOTAL ADDITIVE		0	0	0	0	0	0	0	
TOTAL INCL ADD		146	15	0	12	4	0	177	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5
4-554

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:14

PROJECT CWE SUMMARY

SUMMARY PAGE 1

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00	EA	177		177	177.00
	TOTAL CURRENT CONTRACT COST			177	0	177	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%		0	0	0	
	ESCALATED CONTRACT COST			177	0	177	
	Government-Furnished Property			0		0	
	SUBTOTAL			177	0	177	
	Contingencies	10.0%		18	0	18	
	SUBTOTAL			195	0	195	
	SIOH (S&A)	5.0%		10	0	10	
	CURRENT WORKING ESTIMATE			204	0	204	

Estimated Construction Time 365 Days

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	AMOUNT	PCT	SUBCON W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	1	18	0		128	146	100.0%	0	146
	TOTAL DIRECT				1	18	0		128	146	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5
4-556

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:14

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PM	SUBTOTAL	AMOUNT	PCT	HOFC%	AMOUNT	PCT	BOND%	OTHER%	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		146	15	10.0%	0.0	12	7.5%	2.5%	0.0%	177	100.0%	176.98
	TOTAL OVERHEAD & PROFIT			15	10.0%		12	7.5%					

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5
4-557

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	1	18	0	122	6	146
TOTAL DIRECT	1	18	0	122	6	146

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5

4-558

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	1	18	0	122	6	146
TOTAL DIRECT	1	18	0	122	6	146

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: 7574E5

4-559

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP	DESCRIPTION	LIFE HRS	TL	HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	HRLY	UPB	HRLY	UPB	TOTAL	COST
EMI20	SMALL TOOLS									1.40	1.40			0	0
														0	0
TOTAL PROJECT EQUIPMENT HOURS														0	0

Tue 31 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: BUILDING 7574

TIME 08:36:19

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	1	18
TOTAL PROJECT MANHOURS								1	18

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

PAGE 1 OF 1

31 AUGUST 1993

MERCURY VAPOR STREET LIGHT REPLACEMENT

AREA: HAMMOND HEIGHTS

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

FIXTURE USE: 5200 HR/YR

EXISTING MERCURY VAPOR FIXTURES

175 WATT LAMPS

0 FIXTURES @ 210 W/FIXT = 0 WATTS

BASELINE ENERGY CONSUMPTION 0 KWH

400 WATT LAMPS

57 FIXTURES @ 454 W/FIXT = 25678 WATTS

BASELINE DEMAND 26 KW
BASELINE ENERGY CONSUMPTION 134565 KWH

NET BASELINE ENERGY CONSUMPTION 459 MBTU/YR

REPLACEMENT HIGH PRESSURE SODIUM FIXTURES

100 WATT LAMPS

0 FIXTURES @ 130 W/FIXT = 0 WATTS

REPLACEMENT ENERGY CONSUMPTION 0 KWH

100 WATT LAMPS

57 FIXTURES @ 130 W/FIXT = 7410 WATTS

REPLACEMENT DEMAND 7 KW
REPLACEMENT ENERGY CONSUMPTION 38532 KWH

NET REPLCMT ENERGY CONSUMPTION 131 MBTU/YR

NET ENERGY SAVINGS 328 MBTU/YR

NET DOLLAR SAVINGS \$2,247.70

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 16:03:50

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHEC05
4-563

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 16:03:50

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16524 3000 HIGH PRESSURE SODIUM									
CD=4 EL 3101 FIXTURE 402C 100 WATT	*** UNIT COSTS: ***			2.73	82.31	8.11	146.48	7.32	244.21
WC=1100	57.00 EA EELEK			156	4,692	463	8,349	417	13,921
TOTAL DIVISION 16 ELECTRICAL				156	4,692	463	8,349	417	13,921
TOTAL FACILITY AA. ELECTRICAL				156	4,692	463	8,349	417	13,921
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				156	4,692	463	8,349	417	13,921
TOTAL BASE BID				156	4,692	463	8,349	417	13,921
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				156	4,692	463	8,349	417	13,921

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: EHEC05
4-564

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: STREET LIGHTS

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY STREET LIGHTING IN SELECTED
FAMILY HOUSING AREAS.

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHR FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	13,921	10.0% 1,392	0.0% 0	7.5% 1,148	2.5% 412	0.0% 0	16,873	16873.09
<hr/>										
BID ITEM TOTAL		1.00 EA	13,921	1,392	0	1,148	412	0	16,873	16873.09
<hr/>										
TOTAL BASE BID			13,921	1,392	0	1,148	412	0	16,873	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
<hr/>										
TOTAL INCL ADD			13,921	1,392	0	1,148	412	0	16,873	

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHECO5

4-566

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	16,873		16,873	16873.10
TOTAL CURRENT CONTRACT COST				16,873	0	16,873	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				16,873	0	16,873	
Government-Furnished Property				0		0	
SUBTOTAL				16,873	0	16,873	
Contingencies		10.0%		1,687	0	1,687	
SUBTOTAL				18,560	0	18,560	
SIOH (S&A)		5.5%		1,021	0	1,021	
CURRENT WORKING ESTIMATE				19,581	0	19,581	
Estimated Construction Time		365 Days					

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PH	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT	W/TX	** TOTAL DIRECT *	** SUBCON *	W/OH&P	SUBTOTAL
										AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	156	4,692	463	8,767		13,921	100.0%	0	13,921
	TOTAL DIRECT				156	4,692	463	8,767		13,921	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHECO5
4-568

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 1

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		13,921	1,392	10.0%	0.0		1,148	7.5%	2.5%	0.0%		16,873	100.0%		16873.08
	TOTAL OVERHEAD & PROFIT			1,392	10.0%			1,148	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHEC05
4-569

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	156	4,692	463	8,349	417	13,921
TOTAL DIRECT	156	4,692	463	8,349	417	13,921

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHEC05
4-570

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	156	4,692	463	8,349	417	13,921
TOTAL DIRECT	156	4,692	463	8,349	417	13,921

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: HHEC05
4-571

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	15	21
ETR90 LINE TRUCK								19.86	19.86	22	441
TOTAL PROJECT EQUIPMENT HOURS										37	462

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	156	4,691
TOTAL PROJECT MANHOURS								156	4,691

* * * END OF SUMMARY REPORT * * *

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: HAMMOND HEIGHTS

TIME 16:03:50

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AA. ELECTRICAL.....	1

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FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 1

MERCURY VAPOR STREET LIGHT REPLACEMENT

AREA: LAPOINTE VILLAGE

ELECTRIC COSTS:

FIXTURE USE: 5200 HR/YR
 ENERGY CHARGE \$0.0211 PER KWH
 DEMAND CHARGE \$11.78 PER KW

EXISTING MERCURY VAPOR FIXTURES

175 WATT LAMPS

13 FIXTURES @ 210 W/FIXT = 2730 WATTS

BASELINE ENERGY CONSUMPTION 14196 KWH

400 WATT LAMPS

18 FIXTURES @ 454 W/FIXT = 8172 WATTS

BASELINE DEMAND 11 KW
 BASELINE ENERGY CONSUMPTION 42494 KWH

REPLACEMENT HIGH PRESSURE SODIUM FIXTURES

100 WATT LAMPS

13 FIXTURES @ 130 W/FIXT = 1690 WATTS

REPLACEMENT ENERGY CONSUMPTION 8788 KWH

100 WATT LAMPS

18 FIXTURES @ 130 W/FIXT = 2340 WATTS

REPLACEMENT DEMAND 4 KW
 REPLACEMENT ENERGY CONSUMPTION 12168 KWH

NET BASELINE ENERGY CONSUMPTION 193 MBTU/YR

NET RPLCMT ENERGY CONSUMPTION 72 MBTU/YR

NET ENERGY SAVINGS 122 MBTU/YR

NET DOLLAR SAVINGS \$836.38

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:55:00

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LPEC05
4-576

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

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DETAILED ESTIMATE	DETAIL PAGE
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Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:55:00

DETAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT
16500 LIGHTING									
16524 3000 HIGH PRESSURE SODIUM									
CD=4 EL 3101 FIXTURE 402C 100 WATT	***	UNIT COSTS: ***		2.73	82.31	8.11	146.48	7.32	244.21
WC=1100	31.00	EA	EELEK	85	2,552	252	4,541	227	7,571
TOTAL DIVISION 16 ELECTRICAL				85	2,552	252	4,541	227	7,571
TOTAL FACILITY AA. ELECTRICAL				85	2,552	252	4,541	227	7,571
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				85	2,552	252	4,541	227	7,571
TOTAL BASE BID				85	2,552	252	4,541	227	7,571
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				85	2,552	252	4,541	227	7,571

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LPEC05
4-578

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: STREET LIGHTS

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY STREET LIGHTING IN SELECTED
FAMILY HOUSING AREAS.

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	7,571	10.0% 757	0.0% 0	7.5% 625	2.5% 224	0.0% 0	9,177	9176.59
BID ITEM TOTAL		1.00 EA	7,571	757	0	625	224	0	9,177	9176.59
TOTAL BASE BID			7,571	757	0	625	224	0	9,177	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			7,571	757	0	625	224	0	9,177	

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

PROJECT CWE SUMMARY

SUMMARY PAGE 2

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
	1. BUILDING TO THE 5 FOOT LINE	1.00 EA	9,177		9,177	9176.60
	TOTAL CURRENT CONTRACT COST		9,177	0	9,177	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		9,177	0	9,177	
	Government-Furnished Property		0		0	
	SUBTOTAL		9,177	0	9,177	
	Contingencies	10.0%	918	0	918	
	SUBTOTAL		10,094	0	10,094	
	SIOH (S&A)	5.5%	555	0	555	
	CURRENT WORKING ESTIMATE		10,649	0	10,649	
	Estimated Construction Time	365 Days				

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT * AMOUNT PCT	* SUBCON * W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	85	2,552	252	4,768	7,571 100.0%	0	7,571
	TOTAL DIRECT				85	2,552	252	4,768	7,571 100.0%		

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOPC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT COST
AA	GENERAL/PRIME		7,571	757	10.0%	0.0		625	7.5%	2.5%	0.0%		9,177	100.0%		9176.59
	TOTAL OVERHEAD & PROFIT			757	10.0%			625	7.5%							

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LPEC05
4-583

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

I DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	85	2,552	252	4,541	227	7,571
TOTAL DIRECT	85	2,552	252	4,541	227	7,571

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LPEC05
4-584

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	85	2,552	252	4,541	227	7,571
TOTAL DIRECT	85	2,552	252	4,541	227	7,571

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LPEC05

4-585

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP	DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTH	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20	SMALL TOOLS								1.40	1.40	8	12
ETR90	LINE TRUCK								19.86	19.86	12	240
TOTAL PROJECT EQUIPMENT HOURS											20	252

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LAPOINTE VILLAGE

TIME 15:55:00

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTH	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	**** TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	85	2,553
TOTAL PROJECT MANHOURS								85	2,553

* * * END OF SUMMARY REPORT * * *

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 1

MERCURY VAPOR STREET LIGHT REPLACEMENT

AREA: LEE VILLAGE

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.78 PER KW

FIXTURE USE: 5200 HR/YR

EXISTING MERCURY VAPOR FIXTURES

175 WATT LAMPS

4 FIXTURES @ 210 W/FIXT = 840 WATTS

BASELINE ENERGY CONSUMPTION 4368 KWH

400 WATT LAMPS

124 FIXTURES @ 454 W/FIXT = 56296 WATTS

BASELINE DEMAND 57 KW
BASELINE ENERGY CONSUMPTION 292739 KWH

REPLACEMENT HIGH PRESSURE SODIUM FIXTURES

100 WATT LAMPS

4 FIXTURES @ 130 W/FIXT = 520 WATTS

REPLACEMENT ENERGY CONSUMPTION 2704 KWH

100 WATT LAMPS

124 FIXTURES @ 130 W/FIXT = 16120 WATTS

REPLACEMENT DEMAND 17 KW
REPLACEMENT ENERGY CONSUMPTION 83824 KWH

NET BASELINE ENERGY CONSUMPTION 1014 MBTU/YR NET RPLCMT ENERGY CONSUMPTION 295 MBTU/YR

NET ENERGY SAVINGS 7.18 MBTU/YR NET DOLLAR SAVINGS \$4,928.69

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 14:36:33

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: LEE VILLAGE

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECC5
4-589

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:31

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DETAILED ESTIMATE	DETAIL PAGE
1. BUILDING TO THE 5 FOOT LINE	
AA. ELECTRICAL.....	1

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Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS H-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 14:36:31

DETAILED ESTIMATE

DETAIL PAGE 2

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$
16500 LIGHTING									
16524 3000 HIGH PRESSURE SODIUM									
CD=4 EL 3101 FIXTURE 402C 100 WATT	***	UNIT COSTS: ***		2.73	82.31	8.11	146.48	7.32	244.23
WC=1100	128.00	EA	EELEK	349	10,536	1,039	18,749	937	31,261
TOTAL DIVISION 16 ELECTRICAL				349	10,536	1,039	18,749	937	31,261
TOTAL FACILITY AA. ELECTRICAL				349	10,536	1,039	18,749	937	31,261
TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				349	10,536	1,039	18,749	937	31,261
TOTAL BASE BID				349	10,536	1,039	18,749	937	31,261
TOTAL ADDITIVE				0	0	0	0	0	0
TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				349	10,536	1,039	18,749	937	31,261

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECO5

4-591

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:33

PROJECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: STREET LIGHTS

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY STREET LIGHTING IN SELECTED
FAMILY HOUSING AREAS.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECO5
4-592

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS H-CACES
 ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
 ECO-5: LEE VILLAGE

TIME 14:36:33

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	BONE OFC	PROFIT	BOND	OTHR FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	31,261	3,126	0	2,579	924	0	37,890	37890.43
BID ITEM TOTAL			31,261	3,126	0	2,579	924	0	37,890	37890.43
TOTAL BASE BID			31,261	3,126	0	2,579	924	0	37,890	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			31,261	3,126	0	2,579	924	0	37,890	

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:33

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00 EA	37,890		37,890	37890.40
	TOTAL CURRENT CONTRACT COST		37,890	0	37,890	
	Cost Growth from 08/93 to 08/94 Index Values: 0000 0000	0.0%	0	0	0	
	ESCALATED CONTRACT COST		37,890	0	37,890	
	Government-Furnished Property		0		0	
	SUBTOTAL		37,890	0	37,890	
	Contingencies	10.0%	3,789	0	3,789	
	SUBTOTAL		41,679	0	41,679	
	SIOH (S&A)	5.5%	2,292	0	2,292	
	CURRENT WORKING ESTIMATE		43,972	0	43,972	

Estimated Construction Time 365 Days

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:31

CONTRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	** TOTAL DIRECT *	** SUBCON *	W/OH&P	SUBTOTAL
									AMOUNT	PCT		
AA	GENERAL/PRIME		1.00	EA	349	10,536	1,039	19,687	31,261	100.0%	0	31,261
	TOTAL DIRECT				349	10,536	1,039	19,687	31,261	100.0%		

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:3

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE

ID	CONTRACTOR	PH	SUBTOTAL	*** OVERHEAD ***	AMOUNT	PCT	HOFC%	**** PROFIT ****	AMOUNT	PCT	BOND%	OTHER%	***** TOTAL CONTRACT *****	AMOUNT	PCT	UNIT	COS
AA	GENERAL/PRIME		31,261	3,126	10.0%	0.0		2,579	7.5%	2.5%	0.0%		37,890	100.0%		37890.4	
	TOTAL OVERHEAD & PROFIT			3,126	10.0%			2,579	7.5%								

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVEC05
4-596

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:33

SI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	349	10,536	1,039	18,749	937	31,261
TOTAL DIRECT	349	10,536	1,039	18,749	937	31,261

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECO5

4-597

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:33

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	349	10,536	1,039	18,749	937	31,261
TOTAL DIRECT	349	10,536	1,039	18,749	937	31,261

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECO5
4-598

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:3

EQUIPMENT SUMMARY

SUMMARY PAGE 1

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	HRLY RATE	UPB RATE	HOURS	TOTAL COST
EMI20 SMALL TOOLS								1.40	1.40	34	48
ETR90 LINE TRUCK								19.86	19.86	50	992
TOTAL PROJECT EQUIPMENT HOURS										84	1,039

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:33

LABOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	349	10,535
TOTAL PROJECT MANHOURS								349	10,535

* * * END OF SUMMARY REPORT * * *

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: LEE VILLAGE

TIME 14:36:31

ERROR REPORT

ERROR PAGE 1

1AA 16524 3101 FIXTURE 402C 100 WATT Contractor EL Not Identified in BI 0 - Prime OH & P only applied
Escalation Index Values Missing -- Zero Escalation assumed

* * * END OF ERROR REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: LVECO5
4-601

FORT CAMPBELL ENERGY SAVINGS OPPORTUNITY SURVEY

ECO 5: INDOOR/OUTDOOR LIGHTING EFFICIENCIES TO RECOMMENDED LEVELS

31 AUGUST 1993

PAGE 1 OF 1

MERCURY VAPOR STREET LIGHT REPLACEMENT

AREA: PIERCE VILLAGE

ELECTRIC COSTS:

ENERGY CHARGE \$0.0211 PER KWH

DEMAND CHARGE \$11.76 PER KW

FIXTURE USE: 5200 HR/YR

EXISTING MERCURY VAPOR FIXTURES

175 WATT LAMPS

3 FIXTURES @ 210 W/FIXT = 630 WATTS

BASELINE ENERGY CONSUMPTION 3276 KWH

400 WATT LAMPS

66 FIXTURES @ 454 W/FIXT = 29964 WATTS

BASELINE DEMAND 31 KW
BASELINE ENERGY CONSUMPTION 155812 KWH

REPLACEMENT HIGH PRESSURE SODIUM FIXTURES

100 WATT LAMPS

3 FIXTURES @ 130 W/FIXT = 390 WATTS

REPLACEMENT ENERGY CONSUMPTION 2028 KWH

100 WATT LAMPS

66 FIXTURES @ 130 W/FIXT = 8580 WATTS

REPLACEMENT DEMAND 9 KW
REPLACEMENT ENERGY CONSUMPTION 44616 KWH

NET BASELINE ENERGY CONSUMPTION 543 MBTU/YR

NET REPLCMT ENERGY CONSUMPTION 159 MBTU/YR

NET ENERGY SAVINGS 384 MBTU/YR

NET DOLLAR SAVINGS \$2,631.81

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES

TIME 15:46:28

TITLE PAGE

ENERGY SAVINGS OPPORTUNITY SURVY
FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

Contract No: 27-93-C-0096

Prepared By: Systems Corp
Estimator: Keith A. Derrington
Estimate Prep. Date: 08/31/93
Current UPB/CSI ID: ORL290

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CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-603

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

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DETAILED ESTIMATE	DETAIL PAGE
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AA. ELECTRICAL.....	1

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Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE
1. BUILDING TO THE 5 FOOT LINE / AA. ELECTRICAL

TIME 15:46:28

MAILED ESTIMATE

DETAIL PAGE 1

BASE BID

DIVISION 16 ELECTRICAL	QUANTITY	UOM	CREW	MANHR	LABOR	EQUIPMENT	MATERIAL	SALESTX	DIRECT \$

16500 LIGHTING									
16524 3000 HIGH PRESSURE SODIUM									
CD=4 EL 3101 FIXTURE 402C 100 WATT	***	UNIT COSTS: ***		2.73	82.31	8.11	146.48	7.32	244.23
WC=1100	69.00	EA	EELEK	188	5,679	560	10,107	505	16,852

TOTAL DIVISION 16 ELECTRICAL				188	5,679	560	10,107	505	16,852

TOTAL FACILITY AA. ELECTRICAL				188	5,679	560	10,107	505	16,852

TOTAL BID ITEM 1. BUILDING TO THE 5 FOOT LINE				188	5,679	560	10,107	505	16,852

TOTAL BASE BID				188	5,679	560	10,107	505	16,852

TOTAL ADDITIVE				0	0	0	0	0	0

TOTAL INCL ADD ENERGY SAVINGS OPPORTUNITY SURVY				188	5,679	560	10,107	505	16,852

* * * END OF DETAIL REPORT * * *

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5

4-605

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

JECT NOTES

SUMMARY PAGE 1

PROJECT NOTES

ECO-5: STREET LIGHTS

SCOPE OF WORK: EVALUATE USE OF HIGHER EFFICIENCY STREET LIGHTING IN SELECTED
FAMILY HOUSING AREAS.

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-606

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

BID ITEM AND FACILITY SUMMARY

SUMMARY PAGE 2

BID ITEM 1 BUILDING TO THE 5 FOOT LINE

BASE BID

ID	FACILITY		COST TO PRM	OVERHEAD	HOME OFC	PROFIT	BOND	OTHER FCTR	TOTAL COST	UNIT COST
AA	ELECTRICAL	1.00 EA	16,852	10.0% 1,685	0.0% 0	7.5% 1,390	2.5% 498	0.0% 0	20,425	20425.31
BID ITEM TOTAL		1.00 EA	16,852	1,685	0	1,390	498	0	20,425	20425.31
TOTAL BASE BID			16,852	1,685	0	1,390	498	0	20,425	
TOTAL ADDITIVE			0	0	0	0	0	0	0	
TOTAL INCL ADD			16,852	1,685	0	1,390	498	0	20,425	

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

PROJECT CWE SUMMARY

SUMMARY PAGE 3

ID	BID ITEM	QUANTITY	UOM	BASE BID	ADDITIVE	TOTAL COST	UNIT COST
1.	BUILDING TO THE 5 FOOT LINE	1.00	EA	20,425		20,425	20425.30
TOTAL CURRENT CONTRACT COST				20,425	0	20,425	
Cost Growth from 08/93 to 08/94 Index Values: 0000 0000		0.0%		0	0	0	
ESCALATED CONTRACT COST				20,425	0	20,425	
Government-Furnished Property				0		0	
SUBTOTAL				20,425	0	20,425	
Contingencies		10.0%		2,043	0	2,043	
SUBTOTAL				22,468	0	22,468	
SIOH (S&A)		5.5%		1,236	0	1,236	
CURRENT WORKING ESTIMATE				23,704	0	23,704	

Estimated Construction Time 365 Days

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVEC05
4-608

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

TRACTOR DIRECT SUMMARY

SUMMARY PAGE 4

ID	CONTRACTOR	PM	QUANTITY	UOM	MANHRS	LABOR	EQUIPMENT	MAT W/TX	AMOUNT	PCT	W/OH&P	SUBTOTAL
AA	GENERAL/PRIME		1.00	EA	188	5,679	560	10,612	16,852	100.0%	0	16,852
	TOTAL DIRECT				188	5,679	560	10,612	16,852	100.0%		

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-609

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

CONTRACTOR INDIRECT SUMMARY

SUMMARY PAGE 5

ID	CONTRACTOR	PM	SUBTOTAL	*** OVERHEAD *** AMOUNT PCT	HOFC%	**** PROFIT **** AMOUNT PCT	BOND% OTHER%	***** TOTAL CONTRACT ***** AMOUNT PCT	UNIT COST
AA	GENERAL/PRIME		16,852	1,685 10.0%	0.0	1,390 7.5%	2.5% 0.0%	20,425 100.0%	20425.31
	TOTAL OVERHEAD & PROFIT			1,685 10.0%		1,390 7.5%			

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-610

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

CSI DIVISION SUMMARY

SUMMARY PAGE 6

ID CSI DIVISION	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
16 ELECTRICAL	188	5,679	560	10,107	505	16,852
TOTAL DIRECT	188	5,679	560	10,107	505	16,852

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5

4-611

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

SYSTEMS SUMMARY

SUMMARY PAGE 7

ID SYSTEM	MANHOURS	LABOR	EQUIPMENT	MATERIAL	SALES TAX	***** TOTAL * DIRECT
11 INTERIOR ELECTRICAL	188	5,679	560	10,107	505	16,852
TOTAL DIRECT	188	5,679	560	10,107	505	16,852

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-612

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

EQUIPMENT SUMMARY

SUMMARY PAGE 8

EQUIP DESCRIPTION	LIFE HRS	TL HRLY	OWNRSH	OWNS	OVTM	OWNRSH	EXPENSE	RATE	RATE	HOURS	COST
EMI20 SMALL TOOLS								1.40	1.40	18	26
ETR90 LINE TRUCK								19.86	19.86	27	534
TOTAL PROJECT EQUIPMENT HOURS										45	560

CREW ID: ORL290

CURRENCY in DOLLARS

PROJECT ID: PVECO5
4-613

Wed 25 Aug 1993

U.S. ARMY CORPS of ENGINEERS M-CACES
ENERGY SAVINGS OPPORTUNITY SURVY / FT CAMPBELL, KY
ECO-5: PIERCE VILLAGE

TIME 15:46:28

BOR SUMMARY

SUMMARY PAGE 9

CRAFT DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	HRLY RATE	UPB RATE	**** HOURS	TOTAL COST
LELEC ELECTRICIANS	20.50	0.0%	24.0%	7.49	0.00	32.91	25.79	188	5,679
TOTAL PROJECT MANHOURS								188	5,679

*** END OF SUMMARY REPORT ***

CREW ID: ORL290

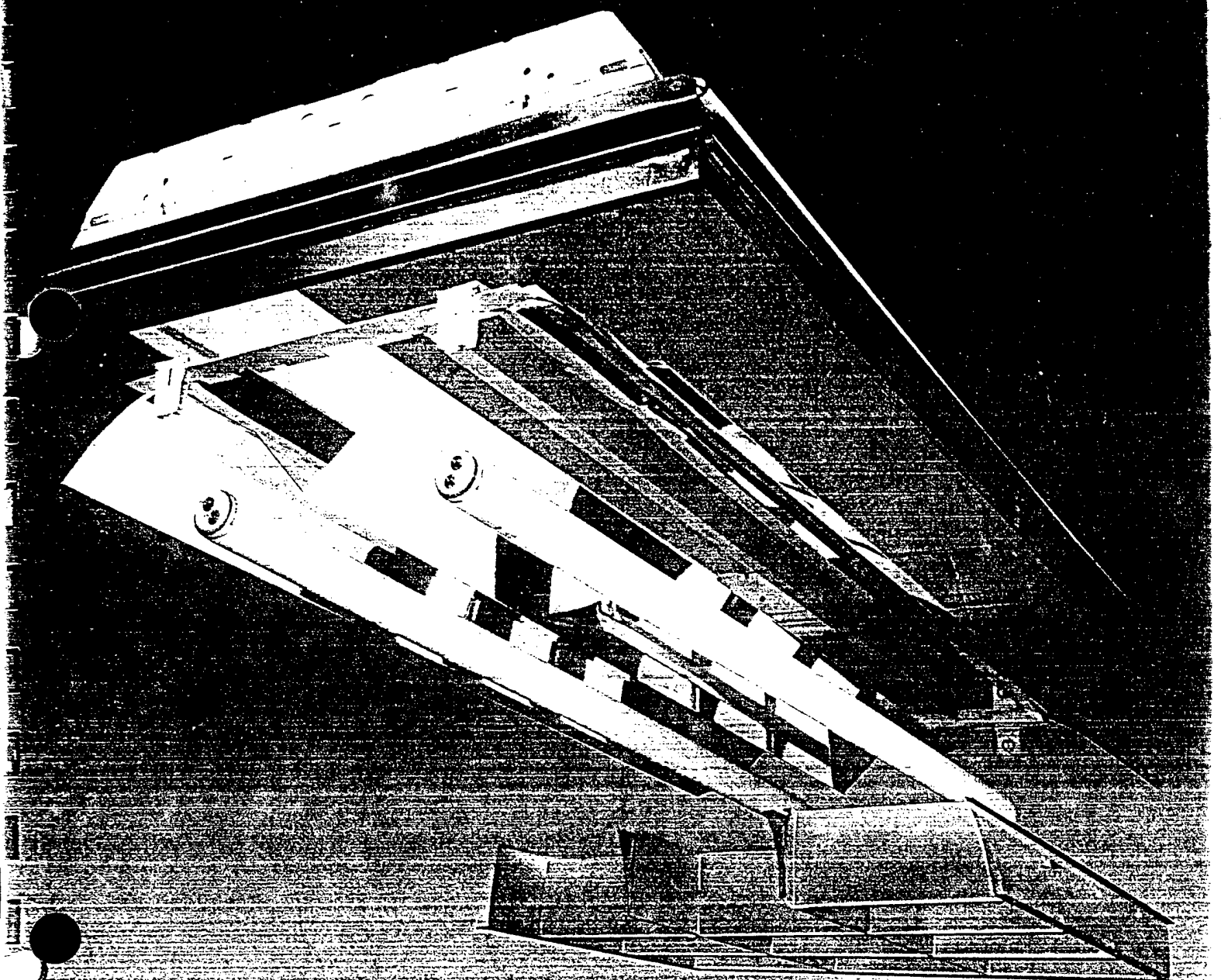
CURRENCY in DOLLARS

PROJECT ID: PVECO5

4-614



Parke Powerlite 4 Series

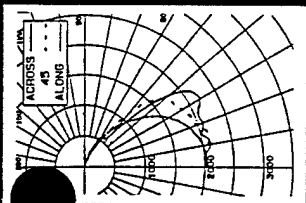


With Parke Powerlites, You Can Save Up To 60% Of Your Lighting Costs Each Year!

- Dramatic reduction in energy consumption.
- Operates on .8 - 1.5 watts per square foot.
- Lowers heat load factors enabling HVAC systems to be down-sized.
- Lowers operating costs up to \$1.00 per square foot.
- Increases visual comfort level.



Parke Powerlites incorporate the latest state of the art reflector technology with the best lamp, ballast, lens and louver combinations to produce maximum efficiency and an excellent return on investment.



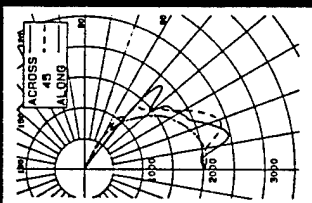
ANGLE ALONG	CARDPOWER SUMMARY				67.5	ACROSS	OUTPUT
	2016	2016	2016	2016			
0	2016	2016	2016	2016	195		
5	2016	2016	2016	2016	195		
10	2016	2016	2016	2016	195		
15	2016	2016	2016	2016	195		
20	2016	2016	2016	2016	195		
25	2016	2016	2016	2016	195		
30	2016	2016	2016	2016	195		
35	2016	2016	2016	2016	195		
40	2016	2016	2016	2016	195		
45	2016	2016	2016	2016	195		
50	2016	2016	2016	2016	195		
55	2016	2016	2016	2016	195		
60	2016	2016	2016	2016	195		
65	2016	2016	2016	2016	195		
70	2016	2016	2016	2016	195		
75	2016	2016	2016	2016	195		
80	2016	2016	2016	2016	195		
85	2016	2016	2016	2016	195		
90	2016	2016	2016	2016	195		

CCC WALL	COEFFICIENT OF EFFECTIVE FL				ZONAL CAVITY METHOD				REFLECTANCE = 20	10	0	
	90	70	50	30	50	30	10	0				
0	70	50	30	10	70	50	30	10	50	30	10	0
0	84	81	79	76	82	79	76	73	72	70	69	.75
1	70	50	30	10	71	70	69	67	71	70	69	.61
1	84	81	79	76	82	79	76	73	72	70	69	.63
2	70	50	30	10	71	70	69	67	71	70	69	.53
2	84	81	79	76	82	79	76	73	72	70	69	.53
3	70	50	30	10	71	70	69	67	71	70	69	.47
3	84	81	79	76	82	79	76	73	72	70	69	.47
4	70	50	30	10	71	70	69	67	71	70	69	.41
4	84	81	79	76	82	79	76	73	72	70	69	.41
5	70	50	30	10	71	70	69	67	71	70	69	.36
5	84	81	79	76	82	79	76	73	72	70	69	.36
6	70	50	30	10	71	70	69	67	71	70	69	.32
6	84	81	79	76	82	79	76	73	72	70	69	.32
7	70	50	30	10	71	70	69	67	71	70	69	.28
7	84	81	79	76	82	79	76	73	72	70	69	.28
8	70	50	30	10	71	70	69	67	71	70	69	.24
8	84	81	79	76	82	79	76	73	72	70	69	.24
9	70	50	30	10	71	70	69	67	71	70	69	.21
9	84	81	79	76	82	79	76	73	72	70	69	.21
10	70	50	30	10	71	70	69	67	71	70	69	.17
10	84	81	79	76	82	79	76	73	72	70	69	.17

83.1 Watts

ZONAL LUMENS AND PERCENTAGES	ZONAL LUMENS	%LAMP LUMINAIRE
0-30	1671	26.12
30-40	2768	43.57
0-40	4405	68.85
0-90	4792	74.89
40-90	2004	31.32
60-90	386	6.03
90-180	0	0.00
0-180	4792	74.89
** EFFICIENCY = 74.9% **		
S/M/L = 1.5		
SC (ALONG) = 1.2		
SC (ACROSS) = 5.5		

- #7568 - PARKE POWERLITE A SERIES™, RECESSED 2X4 LUMINAIRE, MODEL #PP4242ESDC12B1 SILVER REFLECTOR, (2) #F40T12/WW LAMPS, (1) ADVANCE R - 2540 BALLAST, 12 - CELL SEMI - SPECULAR 3" DEEP LOUVER, LUMEN RATING = 1200.**
- Code gauge steel
 - 6" deep troffer
 - 3" 12 - cell semi - specular parabolic louver
 - Energy saver ballast
 - (2) #F40T12 lamps
 - 3 - piece specular silver reflector with tablock fastening 2"x4"

[illegible]

COEFFICIENTS OF UTILIZATION ZONAL CAVITY METHOD		EFFECTIVE FLOOR CAVITY REFLECTANCE = .20													
		60		70		80		90		10					
cc	Wall	50	30	70	50	30	70	50	30	70	50	30	70	50	30
0	1	.92	.98	.98	.98	.95	.95	.95	.95	.91	.91	.87	.87	.84	.84
0	2	.91	.98	.98	.98	.94	.94	.94	.94	.91	.91	.87	.87	.84	.84
0	3	.89	.98	.98	.98	.93	.93	.93	.93	.89	.89	.86	.86	.83	.83
0	4	.87	.97	.97	.97	.91	.91	.91	.91	.87	.87	.84	.84	.81	.81
0	5	.85	.96	.96	.96	.89	.89	.89	.89	.85	.85	.82	.82	.79	.79
0	6	.83	.94	.94	.94	.87	.87	.87	.87	.83	.83	.80	.80	.77	.77
0	7	.81	.93	.93	.93	.85	.85	.85	.85	.81	.81	.78	.78	.75	.75
0	8	.79	.91	.91	.91	.83	.83	.83	.83	.79	.79	.76	.76	.73	.73
0	9	.77	.89	.89	.89	.81	.81	.81	.81	.77	.77	.74	.74	.71	.71
0	10	.75	.87	.87	.87	.79	.79	.79	.79	.75	.75	.72	.72	.69	.69
0	11	.73	.85	.85	.85	.77	.77	.77	.77	.73	.73	.70	.70	.67	.67
0	12	.71	.83	.83	.83	.75	.75	.75	.75	.71	.71	.68	.68	.65	.65
0	13	.69	.81	.81	.81	.73	.73	.73	.73	.69	.69	.66	.66	.63	.63
0	14	.67	.79	.79	.79	.71	.71	.71	.71	.67	.67	.64	.64	.61	.61
0	15	.65	.77	.77	.77	.69	.69	.69	.69	.65	.65	.62	.62	.59	.59
0	16	.63	.75	.75	.75	.67	.67	.67	.67	.63	.63	.60	.60	.57	.57
0	17	.61	.73	.73	.73	.65	.65	.65	.65	.61	.61	.58	.58	.55	.55
0	18	.59	.71	.71	.71	.63	.63	.63	.63	.59	.59	.56	.56	.53	.53
0	19	.57	.69	.69	.69	.61	.61	.61	.61	.57	.57	.54	.54	.51	.51
0	20	.55	.67	.67	.67	.59	.59	.59	.59	.55	.55	.52	.52	.49	.49
0	21	.53	.65	.65	.65	.57	.57	.57	.57	.53	.53	.50	.50	.47	.47
0	22	.51	.63	.63	.63	.55	.55	.55	.55	.51	.51	.48	.48	.45	.45
0	23	.49	.61	.61	.61	.53	.53	.53	.53	.49	.49	.46	.46	.43	.43
0	24	.47	.59	.59	.59	.51	.51	.51	.51	.47	.47	.44	.44	.41	.41
0	25	.45	.57	.57	.57	.49	.49	.49	.49	.45	.45	.42	.42	.39	.39
0	26	.43	.55	.55	.55	.47	.47	.47	.47	.43	.43	.40	.40	.37	.37
0	27	.41	.53	.53	.53	.45	.45	.45	.45	.41	.41	.38	.38	.35	.35
0	28	.39	.51	.51	.51	.43	.43	.43	.43	.39	.39	.36	.36	.33	.33
0	29	.37	.49	.49	.49	.41	.41	.41	.41	.37	.37	.34	.34	.31	.31
0	30	.35	.47	.47	.47	.39	.39	.39	.39	.35	.35	.32	.32	.29	.29
0	31	.33	.45	.45	.45	.37	.37	.37	.37	.33	.33	.30	.30	.27	.27
0	32	.31	.43	.43	.43	.35	.35	.35	.35	.31	.31	.28	.28	.25	.25
0	33	.29	.41	.41	.41	.33	.33	.33	.33	.29	.29	.26	.26	.23	.23
0	34	.27	.39	.39	.39	.31	.31	.31	.31	.27	.27	.24	.24	.21	.21
0	35	.25	.37	.37	.37	.29	.29	.29	.29	.25	.25	.22	.22	.19	.19
0	36	.23	.35	.35	.35	.27	.27	.27	.27	.23	.23	.20	.20	.17	.17
0	37	.21	.33	.33	.33	.25	.25	.25	.25	.21	.21	.18	.18	.15	.15
0	38	.19	.31	.31	.31	.23	.23	.23	.23	.19	.19	.16	.16	.13	.13
0	39	.17	.29	.29	.29	.21	.21	.21	.21	.17	.17	.14	.14	.11	.11
0	40	.15	.27	.27	.27	.19	.19	.19	.19	.15	.15	.12	.12	.09	.09
0	41	.13	.25	.25	.25	.17	.17	.17	.17	.13	.13	.10	.10	.07	.07
0	42	.11	.23	.23	.23	.15	.15	.15	.15	.11	.11	.08	.08	.05	.05
0	43	.09	.21	.21	.21	.13	.13	.13	.13	.09	.09	.06	.06	.03	.03
0	44	.07	.19	.19	.19	.11	.11	.11	.11	.07	.07	.04	.04	.01	.01
0	45	.05	.17	.17	.17	.09	.09	.09	.09	.05	.05	.02	.02	.00	.00
0	46	.03	.15	.15	.15	.07	.07	.07	.07	.03	.03	.00	.00	.00	.00
0	47	.01	.13	.13	.13	.05	.05	.05	.05	.01	.01	.00	.00	.00	.00
0	48	.00	.11	.11	.11	.03	.03	.03	.03	.00	.00	.00	.00	.00	.00
0	49	.00	.09	.09	.09	.01	.01	.01	.01	.00	.00	.00	.00	.00	.00
0	50	.00	.07	.07	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	51	.00	.05	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	52	.00	.03	.03	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	53	.00	.01	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	54	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	55	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	56	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	57	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	58	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	59	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	61	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	62	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	63	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	64	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	65	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	66	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	67	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	68	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	69	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	70	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	71	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	72	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	73	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	74	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	75	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	76	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	77	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	78	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	79	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	81	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	82	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	83	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	84	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	85	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	86	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	87	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	88	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	89	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	90	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	91	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	92	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	93	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	94	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	95	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	96	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	97	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	98	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	99	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0	100	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

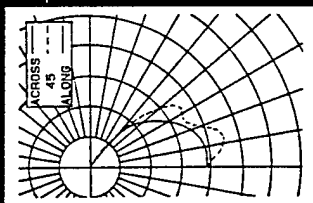
63.4 Watts

ZONE	LUMENS	PERCENTAGE	SLAM	LUMINAIRE
0-30	1753	29.72	36.25	
0-40	2840	48.15	58.72	
0-50	4656	78.93	96.27	
0-60	4837	81.99	100.00	
60-90	1996	33.85	41.28	
90-180	180	3.06	3.73	
0-180	4837	81.99	100.00	

** EFFICIENCY = 82.0% **
 S.M.W. = 1.3
 SC(ALONG) = 1.2
 SC(CROSS) = 1.3

Model #PP4242OEDC12B1

- 96955 - PARKE POWERLITE 4 SERIES...RECESSED
 2X4X4 LUMINAIRE, MODEL #PT42420EJC12B1,
 SILVER REFLECTOR, (2) GE FO32SF84 32-
 WATT T8 LAMPS, (1) TRIAD B3121/10 ELEC-
 TRONIC BALLAST, 12" CELL SEMI - SPECULAR
 3" DEEP LOUVER. LUMEN RATING = 2950.
- Code guage steel
 3" 12" cell semi - specular parabolic bouver
 Electronic ballast
 (2) T8 lamps
 3 - piece specular silver reflector with tablock fastening
 2"x4"

[illegible][illegible]

ZONE	ZONAL LUMENS	PERCENTAGE LUMENS	RELATIVE LUMINAIRE
0-30	1635	26.0	40.3
0-40	2595	41.2	63.9
0-60	3948	62.7	97.2
0-90	4051	64.5	100.0
90-180	0	0.0	0.0
0-180	4051	64.5	100.0

** EFFICIENCY = 64% **
 *** F/MH = 1.2
 (SCALING) = 1.4
 (LUMEN) = 1.2

Model #PP4222BXDC09B1

- 191918A - PARKE POWERLITE 4 SERIES...2X2
LUMINAIRE, MODEL #PP4222BXDC09B1,
SILVER REFLECTOR, (2) GE F040BX/SPX3SR,
BALLAST, 9 - CELL SEMI-SPECULAR 3"
DEEP LOUVER, LUMEN RATING = 3150.



PAAKE INDUSTRIES INC.



MOTOROLA
Lighting Inc.



A General Electric Company



MOTOROLA
Lighting Inc.

ELECTRONIC BALLAST RAPID START
MODEL NO. M3-RN-T12-1LL-120
FOR SERVICE: 1-800-MLI-0089
BUFFALO GROVE, IL 60089

NO PCB'S

3 LAMPS
INPUT:
120 VOLTS AC 60 Hz



WHITE
BLACK

LINE

BALLAST

LAMPS

RED
YELLOW

LAMP

WHITE
BLACK

LINE

BALLAST

LAMPS

RED
YELLOW

LAMP

BLUE/WHY

LAMP

BROWN

LAMP

BLUE

LAMP

18 AWG Solid Copper Wire
Strip to 3/8 inch

MFG IN USA

MOTOROLA
Lighting Inc.

ELECTRONIC BALLAST RAPID START
MODEL NO. M4-RN-T8-1LL-277
FOR SERVICE: 1-800-MLI-0089
BUFFALO GROVE, IL 60089

NO PCB'S

CLASS P HIGH POWER FACTOR

LAMP
TYPE
F022T8
F025T8

32W
25W

44 AMP
35 AMP

SOUND RATING-A

MIN. STARTING
TEMP

50° F
50° F

INSTALL IN ACCORDANCE WITH
NATIONAL AND LOCAL ELECTRICAL CODES



LISTED
1LS3

PATENT PENDING

**HIGH PERFORMANCE
ELECTRONIC BALLASTS**
FLUORESCENT 1, 2, 3 and 4 LAMP
RAPID START

Total Customer Satisfaction



MOTOROLA

Lighting Inc.

Total Customer Satisfaction

CUSTOMER SUPPORT 1-800-MLI-0089

HIGH PERFORMANCE FEATURES

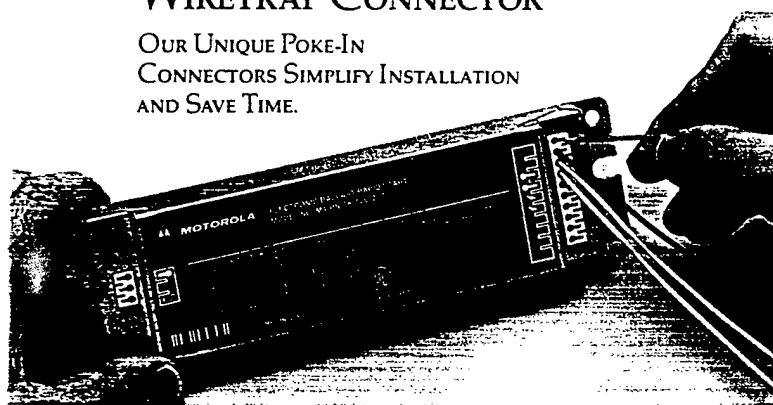
Power Factor:	Greater than .99
Total Harmonic Distortion:	Less than 10%
Third Harmonic Distortion:	Less than 6%
Lamp Current Crest Factor:	Less than 1.5
Lamp Current Frequency:	Greater than 25 KHz
Lamp Configuration:	Series
Lamp Flicker:	Less than 2%, Not Visible
Sound Rating:	Class A
Projected Life:	20 years plus
Connector:	Poke-in wire trap for 18 gauge (solid wire)
Weight:	1.2 lbs.
EMI:	Meets FCC Part 18, Subpart C

CODES

UL Listed:	Class P
Transient Protection:	Meets ANSI C62.41, Cat. A (Formerly IEEE 587)

WIRETRAP CONNECTOR

OUR UNIQUE POKE-IN
CONNECTORS SIMPLIFY INSTALLATION
AND SAVE TIME.



PART NUMBER DESCRIPTION

MODEL NUMBER EXPLANATION					
M	4	R	N	T8	1LL-277
Motorola Lighting Inc. Electronic Ballast	Number of Lamps Operated	Lamp Start Sensing	Light Output N = Normal A = Rapid Start	Lamp Type T8	Full Light Output
					120

QUALITY

Motorola's goal of acceptable quality is at Six Sigma or no more than 3.4 defects per million opportunities. Motorola Lighting Inc. designed its electronic ballast to meet the most rigorous performance standards at world class levels. This translates into a highly robust product that goes through extensive environmental stress testing to assure our customers of very low initial defect levels (less than 0.1%) and high reliability (greater than 500,000 hours Mean Time to Failure—MTTF).

The economic ballast life is 20 years when operated at 45°C ambient temperature. Operation of MLI's ballast at 50°C may derate life expectancy by 25%.

Six Sigma Quality means "world class" in all that we do at Motorola Lighting Inc., which is part of our commitment to TOTAL CUSTOMER SATISFACTION.



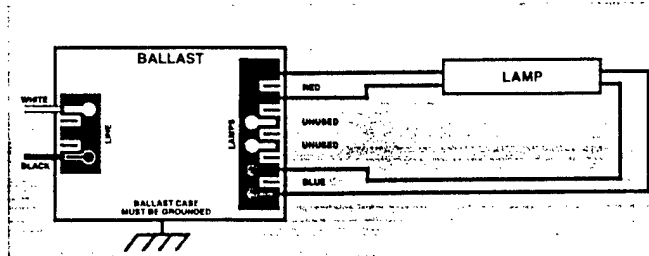
RAPID START BALLASTS

Lamp Type	Rated Lamp Wattage (W)	Lamp Length (FT)	Model No.	Line Voltage (V)	Max Line Current (A)	Typical Line Current (A)	Typical Input Power (W)		Min. Starting Temp (F)
							Open	Enclosed	
1 LAMP T8									
F32T8	32	4	M1-RN-T8-1LL-120	120	.31	.24	29	28	50°
F32T8	32	4	M1-RN-T8-1LL-277	277	.13	.11	29	28	50°
F25T8	25	3	M1-RN-T8-1LL-120	120	.24	.19	23	22	50°
F25T8	25	3	M1-RN-T8-1LL-277	277	.10	.08	23	22	50°
F17T8	17	2	M1-RN-T8-1LL-120	120	.17	.13	16	15	50°
F17T8	17	2	M1-RN-T8-1LL-277	277	.07	.08	16	15	50°
2 LAMP T8									
F32T8	32	4	M2-RN-T8-1LL-120	120	.55	.51	61	58	50°
F32T8	32	4	M2-RN-T8-1LL-277	277	.24	.21	59	56	50°
F25T8	25	3	M2-RN-T8-1LL-120	120	.42	.40	48	45	50°
F25T8	25	3	M2-RN-T8-1LL-277	277	.18	.17	46	44	50°
F17T8	17	2	M2-RN-T8-1LL-120	120	.27	.24	32	29	50°
F17T8	17	2	M2-RN-T8-1LL-277	277	.12	.10	34	31	50°
2 LAMP T12									
F40T12	40	4	M2-RN-T12-1LL-120	120	.64	.59	71	69	50°
F40T12	40	4	M2-RN-T12-1LL-277	277	.27	.25	69	67	50°
F40T12	34	4	M2-RN-T12-1LL-120	120	.54	.50	60	59	60°
F40T12	34	4	M2-RN-T12-1LL-277	277	.23	.21	58	57	60°
F40T10	40	4	M2-RN-T12-1LL-120	120	.64	.60	72	71	50°
F40T10	40	4	M2-RN-T12-1LL-277	277	.27	.25	70	69	50°
F30T12	30	3	M2-RN-T12-1LL-120	120	.48	.44	53	52	50°
F30T12	30	3	M2-RN-T12-1LL-277	277	.21	.19	52	50	50°
F30T12	25	3	M2-RN-T12-1LL-120	120	.40	.37	44	43	60°
F30T12	25	3	M2-RN-T12-1LL-277	277	.17	.16	43	42	60°
3 LAMP T8									
F32T8	32	4	M3-RN-T8-1LL-120	120	.78	.76	90	87	50°
F32T8	32	4	M3-RN-T8-1LL-277	277	.33	.32	89	85	50°
F25T8	25	3	M3-RN-T8-1LL-120	120	.61	.59	70	67	50°
F25T8	25	3	M3-RN-T8-1LL-277	277	.26	.25	69	66	50°
F17T8	17	2	M3-RN-T8-1LL-120	120	.39	.35	47	44	50°
F17T8	17	2	M3-RN-T8-1LL-277	277	.16	.14	44	41	50°
3 LAMP T12									
F40T12	40	4	M3-RN-T12-1LL-120	120	.92	.90	107	105	50°
F40T12	40	4	M3-RN-T12-1LL-277	277	.45	.38	105	103	50°
F40T12	34	4	M3-RN-T12-1LL-120	120	.84	.77	91	89	60°
F40T12	34	4	M3-RN-T12-1LL-277	277	.41	.33	90	88	60°
F40T10	40	4	M3-RN-T12-1LL-120	120	.99	.92	109	107	50°
F40T10	40	4	M3-RN-T12-1LL-277	277	.48	.39	107	105	50°
F30T12	30	3	M3-RN-T12-1LL-120	120	.76	.67	80	78	50°
F30T12	30	3	M3-RN-T12-1LL-277	277	.37	.29	78	76	50°
F30T12	25	3	M3-RN-T12-1LL-120	120	.71	.57	67	65	60°
F30T12	25	3	M3-RN-T12-1LL-277	277	.35	.24	66	64	60°
4 LAMP T8									
F32T8	32	4	M4-RN-T8-1LL-120	120	1.04	1.02	121	118	50°
F32T8	32	4	M4-RN-T8-1LL-277	277	.44	.43	118	115	50°
F25T8	25	3	M4-RN-T8-1LL-120	120	.81	.80	95	91	50°
F25T8	25	3	M4-RN-T8-1LL-277	277	.35	.34	93	90	50°
F17T8	17	2	M4-RN-T8-1LL-120	120	.55	.49	67	64	50°
F17T8	17	2	M4-RN-T8-1LL-277	277	.22	.19	61	58	50°

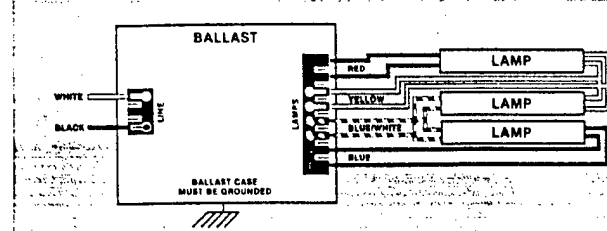
Ballast Will Operate the U-Shaped Equivalents of the Above Lamps. Test Data from Independent Test Lab Available on Request from Factory.

WIRING DIAGRAMS AND BALLAST DIMENSIONS

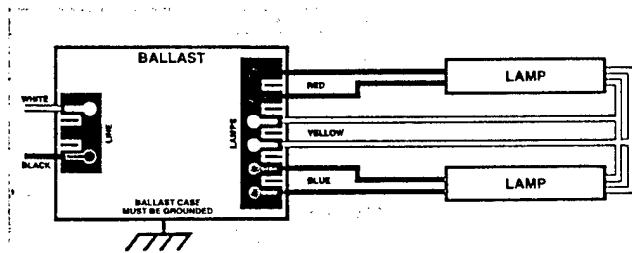
WIRING DIAGRAMS



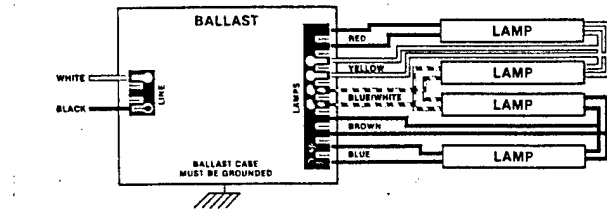
1 LAMP



3 LAMP

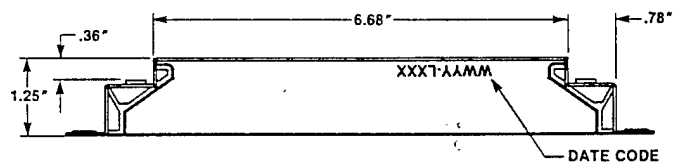
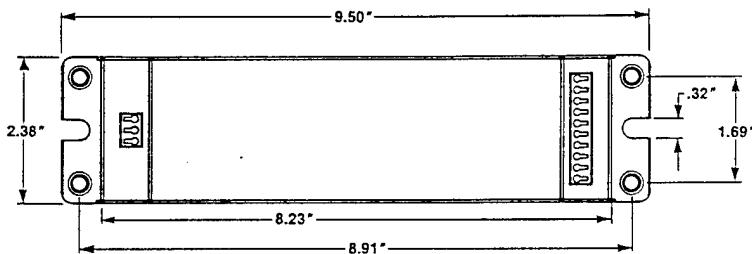


2 LAMP



4 LAMP

BALLAST DIMENSIONS*



*BALLAST IS SYMMETRICAL FOR MOUNTING PURPOSES



Our state-of-the-art manufacturing facility in Buffalo Grove, Illinois—in the U.S.A.

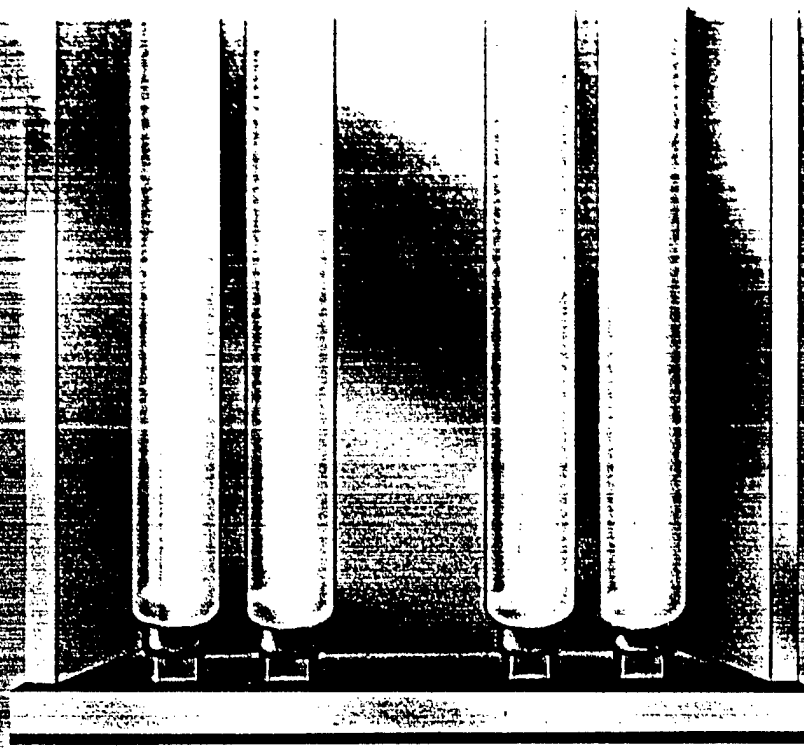


MOTOROLA
Lighting Inc.

887 Deerfield Parkway
Buffalo Grove, IL 60089
1-800-MLI-0089

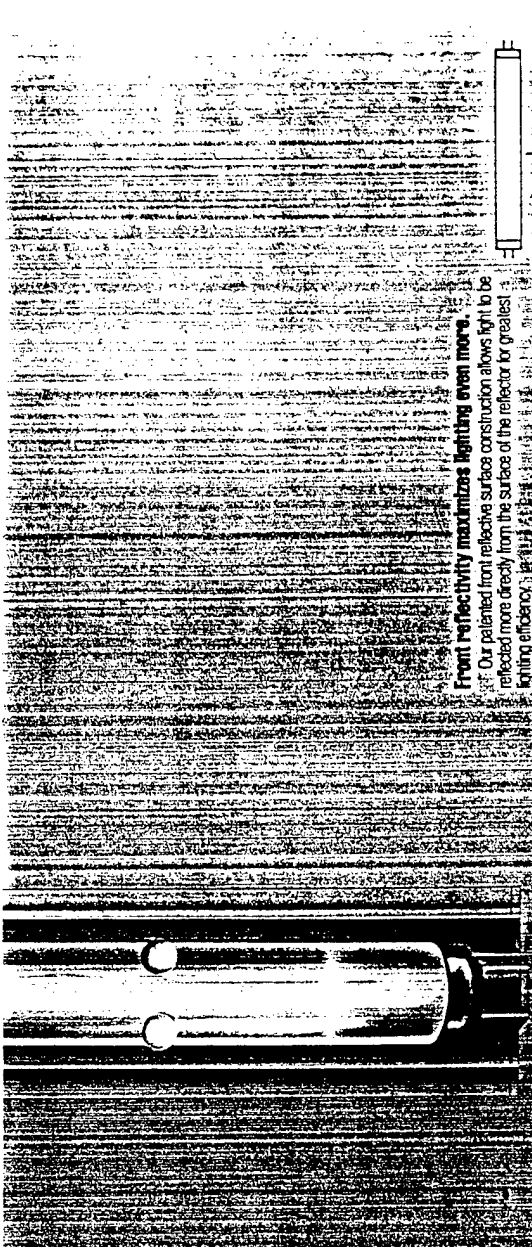
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Opportunity/Affirmative Action Employer



SILVERLUXTM
REFLECTORS
CUT YOUR
LIGHTING ENERGY
COSTS IN HALF.





NOT YOUR LIGHTING LEVELS.

The energy-saving outlook is bright.

Silverlux reflectors (if you remove as many as half your fluorescent lamps, while maintaining optimum lighting levels and a fully-lamped look. And when you cut the number of fluorescent lamps in half, you can also cut your energy costs in half.

Or Silverlux reflectors can actually deliver more light out of the same lamps—improving lighting levels dramatically—without increasing energy lamp or ballast costs.

The payback—short!—usually less than two years.

Direct savings in the form of lower lighting energy costs pay off quickly. Additional indirect savings such as fewer lamps and ballasts, lower maintenance costs, and lower air conditioning costs can accelerate payback even more.

Payback Table

Energy Savings per Year (10 hours/day, 7 days/week)	Reflector Cost	Payback (Years)
\$10	\$10	1.0
\$20	\$20	0.5
\$30	\$30	0.3
\$40	\$40	0.25
\$50	\$50	0.2
\$60	\$60	0.17
\$70	\$70	0.14
\$80	\$80	0.13
\$90	\$90	0.11
\$100	\$100	0.10

Reflectivity and efficiency—the highest available.

After determining your actual lighting requirements, 3M computer-aided design software is used to determine your reflector for highest performance.

Part of that performance stems from a unique silver film made by 3M that has 95% specular reflectivity—the highest reflectivity on the market. This film is first laminated to specified, pre-tested metal substrates laminated with proven 3M adhesives. This adhesive expertise provides a strong film-to-substrate bond, uniform appearance and exceptional performance year after year.

Reflector Surface	Specular Reflectivity	Total Reflectivity
3M Specularized Fluorescent Reflector	95%	90%
Acrylic	60% - 85%	70% - 80%
White	5%	60% - 80%

Labels: 3M, Silverlux, Fluorescent, Reflector, Acrylic, White, Labels

The higher the reflectivity, the greater the light delivery. The more light reflected into the work space, the more efficient the lighting system. And maximum efficiency means lower costs. The Silverlux reflector is the most efficient lighting system available. It's the only reflector designed and manufactured with our Silverlux film and proven adhesives.

Front reflectivity maximizes lighting even more.

Our patented front reflective surface construction allows light to be reflected more directly from the surface of the reflector for greatest lighting efficiency.

What's more, a special non-yellowing acrylic coating protects the film from degradation due to ultraviolet light. A second similar coating prevents the silver from oxidizing or corroding. Result? Maximum performance over a longer life.

Silverlux reflectors are easy to install and maintain.

Lamps can be removed and fixtures relit with no rewiring.

All fluorescent reflectors become dirty over time. Yet tests indicate that even without cleaning, Silverlux reflectors lose less than 3% of their reflectivity over a four-year period in normal office environments. Superior reflectivity can be maintained simply by cleaning reflectors with a mist of 2% liquid detergent in warm water and wiping with a soft cloth or sponge. After cleaning, reflectors return to 99% of their original reflectivity.

We'll even help finance your program.

Minnesota—a division of 3M—provides financing for customers who invest in 3M products such as Silverlux reflectors. Because Minnesota's primary function is to make it easier for customers to buy 3M products, financing rates are kept as low as possible.

EXAMPLE ONLY

Installed value: 1717 reflectors @ \$53/unit installed = \$250,000

Minnesota Financing

Amount financed	Term of agreement	Monthly payment	Monthly energy savings	Net monthly savings
\$250,000	36 months	\$8,110	\$14,749	\$6,639

Lease-purchase plans are available at fixed monthly charges, for periods ranging from one to three years. In effect, you're using your energy savings to pay for the installation.

Just as important, your entire purchase—Silverlux reflectors, installation and financing—can be handled by one person. Your 3M representative.

*Note: Based on the above rate. Savings depend on your actual operation, usage and power rates.

SILVERLUX FLUORESCENT REFLECTORS

- Cut energy costs in half or enhance lighting levels
- Pay for themselves in two years or less
- Install and maintain easily
- Warranted for 5 years
- Attractive low-rate financing available
- Available from nationwide dealer network

For more information just call.

3M is a part of the Green Lights Program—a voluntary, non-regulatory program organized by the Environmental Protection Agency (EPA). This program encourages corporations to take advantage of new lighting technologies and design principles that benefit the environment. 3M is a unique member of the program because it participates as both a consumer of electrical lighting energy and as a developer of electrical lighting products. Silverlux reflectors demonstrate 3M's commitment to energy-efficient lighting technologies that reduce energy consumption and pollution while delivering the same or better lighting.

Cut costs, not lighting.

3M Construction Markets

3M Center Bldg. 225-4S-08

St. Paul, MN 55144-1000

612-736-2388

Innovation working for you™

3M

ENERGY EFFICIENCY IN LIGHTING



**LIGHTWAY
INDUSTRIES**

4-625

CEILINGWAY Low Profile

A classic ceiling fixture with clean, angular lines designed to blend in with a wide variety of architectural styles. The high light output and close profile make it an excellent choice for bathrooms, kitchens and corridors.

OPTIONS AVAILABLE

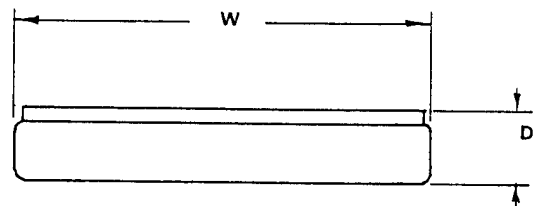
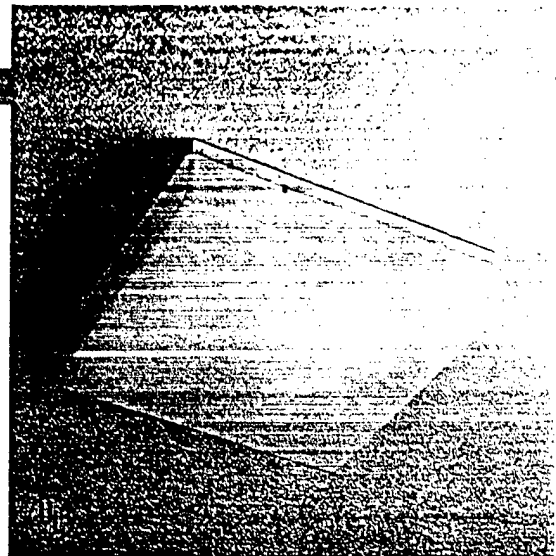
- Cold weather or 277v ballast
- Rapid start ballast for 22 watt
- White polycarbonate diffuser
- Black trim
- Custom color finish
- Emergency Ballast - extended pan req'd
- Tamper proof screws (tool available)

STANDARD FEATURES

- **Construction** Heavy gauge steel
- **Pan** White polyester powder coated
- **Diffuser** White, non-yellowing acrylic
- **Ballast** Rapid start on 32 & 54 watt
- **UL Listed** Damp location
- Mounting hardware & lamp(s)



MODEL	LAMP	W	D	L
CS13LP	13 watt	14"	3 1/4"	14"
CS26LP	2-13 watt	14"	3 1/4"	14"
CS20LP	20 watt	14"	3 1/4"	14"
CS22LP	22 watt	14"	3 1/4"	14"
CS32LP	32 watt	14"	3 1/4"	14"
CS54LP	22 & 32 watt	14"	3 1/4"	14"



CEILINGWAY Square

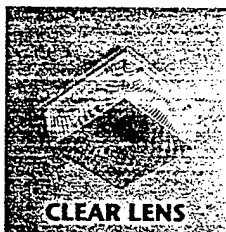
An economical square ceiling fixture, designed for both strength and economy. Available with circline or twin tube lamps. Optional clear or white polycarbonate diffuser and tamper proof screws are available.

OPTIONS AVAILABLE

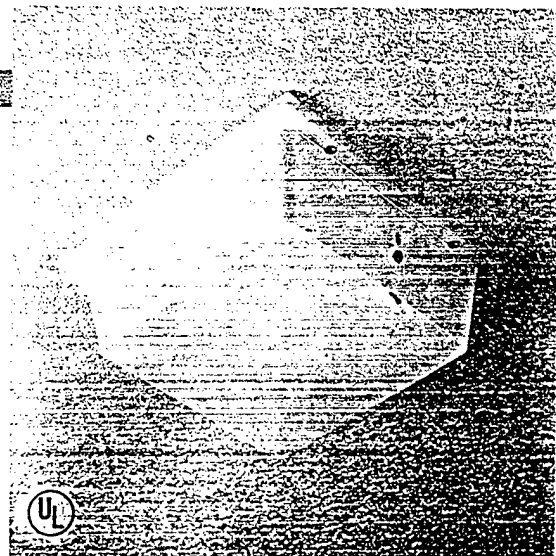
- Cold weather or 277v ballast
- Rapid start ballast for 22 watt
- Clear prismatic acrylic diffuser
- Clear prismatic or white polycarbonate diffuser
- Tamper proof screws (tool available)
- Emergency Ballast - extended pan req'd
- High Pressure Sodium - see new CEILINGWAY HPS/MH on page 19

STANDARD FEATURES

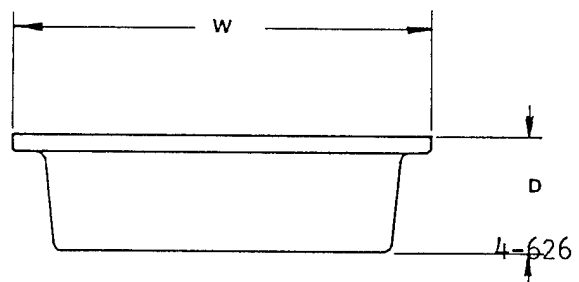
- **Construction** Heavy gauge steel
- **Pan** White polyester powder coated
- **Diffuser** White, non-yellowing acrylic
- **UL Listed** Damp location
- Mounting hardware & lamp(s)



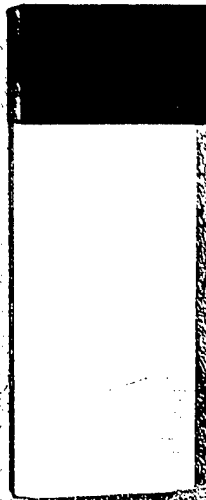
MODEL	LAMP	W	D	L
CS9	9 watt	10 1/2"	4"	10 1/2"
CS13	13 watt	10 1/2"	4"	10 1/2"
CS18	2-9 watt	10 1/2"	4"	10 1/2"
CS26	2-13 watt	10 1/2"	4"	10 1/2"
CS20	20 watt	10 1/2"	4"	10 1/2"
CS22	22 watt	10 1/2"	4"	10 1/2"



Note: To convert existing fixture to fluorescent see CWS retrofit, page 27



SLIMWAY



A sleek, compact fluorescent wall bracket with UL Wet listing, ideal for outdoor as well as indoor applications.

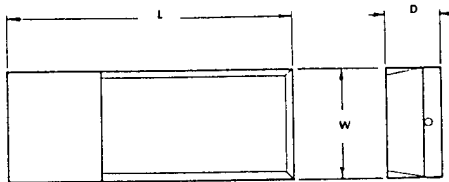
New: the SLIMWAY Miniature with a 5 watt fluorescent lamp, ideal for steps, closets and more.

STANDARD FEATURES

- **Construction** Heavy gauge steel
- **Finish** Low gloss black polyester powder coated
- **Diffuser** White UV stabilized textured polycarbonate
- **UL Listed** Wet location
- Mounting hardware & Lamp(s)

OPTIONS AVAILABLE

- Clear textured polycarbonate diffuser
- Cold weather or 277v ballast
- Custom color exterior finish
- Tamper proof screw (tool available)
- Back box with knock-outs
- Photo cell - see SLIMWAY Photo cell



MODEL	LAMP	W	D	L
SW7	7 watt	4"	2"	10 1/2"
SW9	9 watt	4"	2"	10 1/2"
SW13	13 watt	4"	2"	10 1/2"
SW18	2-9 watt	4"	2"	10 1/2"
SWM5	5 watt	4"	2"	6 1/2"

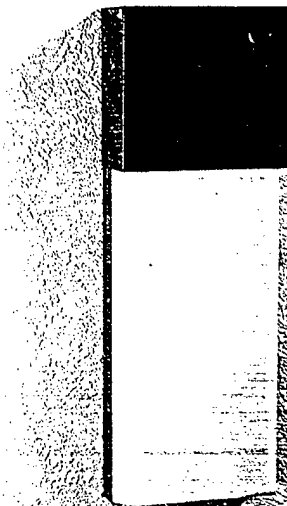


New!

MINIATURE

SLIMWAY Photo Cell

Our very popular SLIMWAY with a built-in "Dusk to Dawn" photo cell. The same quality construction and finish in a slightly taller size. Standard lens is white polycarbonate, but can be ordered with optional clear polycarbonate lens.

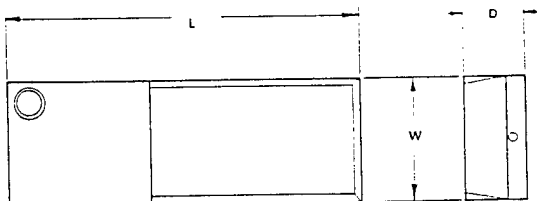


STANDARD FEATURES

- **Construction** Heavy gauge steel
- **Finish** Low gloss black polyester powder coated
- **Diffuser** White UV stabilized textured polycarbonate
- **UL Listed** Wet location
- Mounting hardware & Lamp(s)

OPTIONS AVAILABLE

- Clear textured polycarbonate diffuser
- Cold weather or 277v ballast
- Custom color exterior finish
- Tamper proof screw (tool available)
- Back box with knock-outs



MODEL	LAMP	W	D	L
SWP7	7 watt	4"	2"	11 3/4"
SWP9	9 watt	4"	2"	11 3/4"
SWP13	13 watt	4"	2"	11 3/4"
SWP18	2-9 watt	4"	2"	11 3/4"

4-627

SIDEWAY

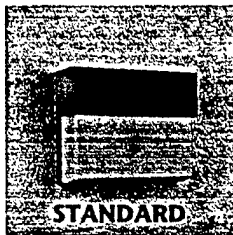
A sister to our SLIMWAY with the same low profile construction, UL Wet Listing and white polycarbonate lens. SIDEWAY is designed for compact fluorescent lighting to 26 watts (2-13 watt). Optional photo cell shown is available.

OPTIONS AVAILABLE

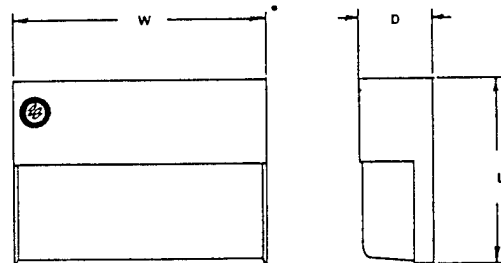
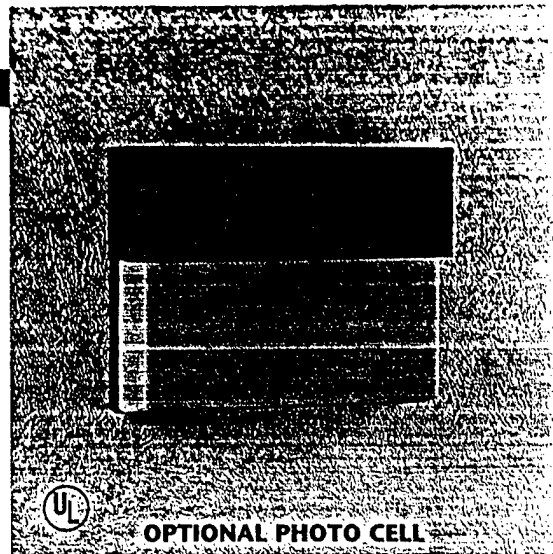
- Clear polycarbonate diffuser
- Cold weather or 277v ballast
- Custom color exterior
- Tamper proof screw (tool available)
- Photo cell

STANDARD FEATURES

- **Construction** Heavy gauge steel
- **Finish** Low gloss black polyester powder coated
- **Diffuser** White UV stabilized textured polycarbonate
- **UL Listed** Wet location
- Mounting hardware & Lamp(s)



MODEL	LAMP	W	D	L
SDW7	7 watt	8 5/8"	2 1/2"	6 11/16"
SDW9	9 watt	8 5/8"	2 1/2"	6 11/16"
SDW13	13 watt	8 5/8"	2 1/2"	6 11/16"
SDW18	2-9 watt	8 5/8"	2 1/2"	6 11/16"
SDW26	2-13 watt	8 5/8"	2 1/2"	6 11/16"



BRIGHTWAY

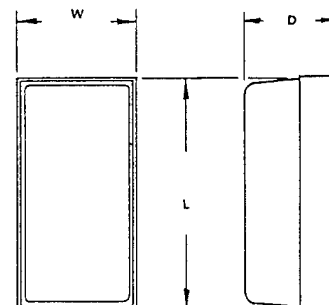
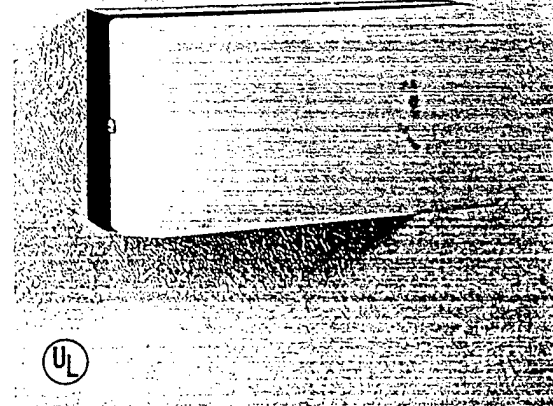
UL Wet Listed for use indoors or out, in wall or ceiling applications. White polycarbonate lens and powder coated steel construction are standard features. Options include Polished Brass finish and Bulkhead style cage.

OPTIONS AVAILABLE

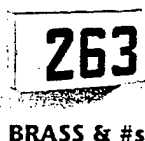
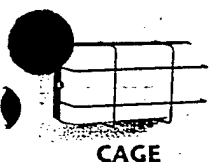
- Clear textured polycarbonate diffuser
- Cold weather or 277v ballast
- Chrome or Polished Brass finish
- 3" letters or numbers (up to 4 digits)
- Bulkhead style cage
- Custom color finish
- Back box with knock-outs or backplate
- Tamper proof screws (tool available)
- Photo cell

STANDARD FEATURES

- **Construction** Heavy gauge steel
- **Finish** Low gloss black polyester powder coated
- **Diffuser** White UV stabilized textured polycarbonate
- **UL Listed** Wet location
- Mounting hardware & Lamp(s)



MODEL	LAMP	W	D	L
BW7	7 watt	4 1/2"	3 1/2"	8 9/16"
BW9	9 watt	4 1/2"	3 1/2"	8 9/16"
BW13	13 watt	4 1/2"	3 1/2"	8 9/16"
BW18	2-9 watt	4 1/2"	3 1/2"	8 9/16"
BW26	2-13 watt	4 1/2"	3 1/2"	8 9/16"

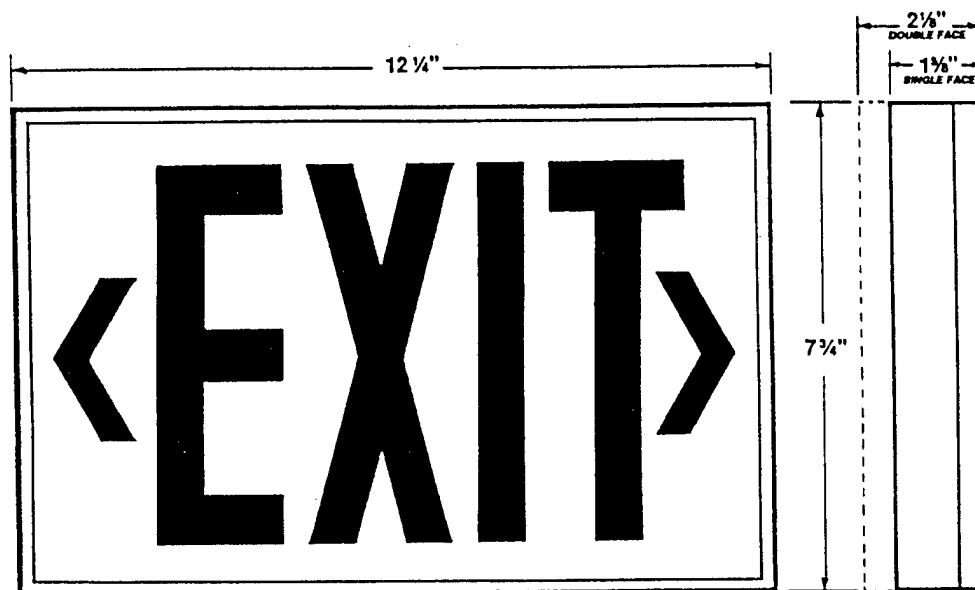


4-628

Evenlite LED Exit Lights

EV SERIES

The LED of the 21st Century



No Ifs, Ands or Buts.

This is exactly how the EVENLITE 2000 appears! Perfectly even illumination is produced by indirect lighting, so that the LED's are invisible, with no hot spots. All this is provided in the slimmest sign on the market with integral charger and battery.

No competitor comes close to these combined specifications:

- Less than 3 watts total power per face
- Perfect light distribution across face
- Single face only 1 5/8 " thick
- Double face only 2 1/8" thick
- Remote unit only 1/2" thick
- Multiple LED lamps with 20 year unconditional guarantee
- NICAD batteries with 5 year guarantee
- Aluminum housing for light weight and strength
- Universal mount
- Baked enamel, vinyl clad or satin anodized finishes
- Polycarbonate faceplate

Patent Pending



SHIELD SOURCE INCORPORATED
220 VFW Avenue, Grasonville, Maryland 21638
Tel.: (410) 827-6022 Fax: (410) 827-9657

4-629



SHIELD SOURCE INCORPORATED

EXIT SIGN COST COMPARISON

MODEL 101 SELF-LUMINOUS SIGN VS ELECTRICAL SIGNS

10 YEAR COSTS:

	AC/DC Battery 2 x PL7 Lamps	AC/DC Battery 2 x 25w Lamps	SHIELD Model 101
Fixture (1)	120	80	
Labor & Material (1)	80	80	15
<u>INITIAL INSTALLED COST:</u>	<u>200</u>	<u>160</u>	
Electricity	123 (2A)	438 (2B)	0
Lamp	144 (3A)	115 (3B)	0
Lamp replacement labor(4)	45	575	0
Battery replacement (5)	220	220	0
Battery maintenance (6)	40	40	0
Cost inflation factor (7)	160	389	0
<u>TOTAL COSTS AFTER 10 YRS:</u>	<u>\$932</u>	<u>\$1,937</u>	<u>\$</u>

TO COMPARE COSTS, INSERT YOUR QUOTE FOR SHIELD SIGNS IN COLUMN 3.

Based on above and assuming SHIELD sign average cost is \$200 installed, if you now have 50 Exit signs operating with 25w lamps over 10 years, and we include the cost of a new SHIELD sign in 1998 at \$256 installed (inflation at 2.5% per yr) YOU COULD SAVE \$96,394! Even with current "power and labor saving" exits with PL7 lamps, savings will be \$46,144!

NOTES:

- (1) Average 1987 Fixture costs: Electrical contractor labor at \$30/hr: Material includes typical pipe, wire, & circuit breaker: If new load center needed, add to material costs.
- (2A) Two 7 watt PL7 lamps/sign, 24 hrs/day at \$0.10/kwh.
- (2B) Two 25w lamps/sign, 24 hrs/day at \$.10/kwh.
- (3A) 10,000 hr lamps, 9 changes of 2 lamps/sign, lamp at \$8.00 ea.
- (3B) 750 hr lamps, 115 changes of 2 lamps/sign, lamp at \$.50 ea.
- (4) Lamp replacement, 15 min/sign, labor \$10.00/hr.
- (5) Battery costs estimated for a change every 2½ years per sign or 4 changes at a cost of \$55.00/unit. The cost per battery will vary as to type of battery installed. This estimate also assumes no failure of charger or transfer circuits.
- (6) Battery maintenance and replacement per (7) above, 4 changes per sign, 1 hr/sign, labor at \$10.00/hr.
- (7) Inflation 2.5% per year applied to operating and maintenance costs for electric signs after installation.



Designers and Manufacturers of Reliable, Common Sense, Energy Conservation Equipment

1993 PRICE LIST

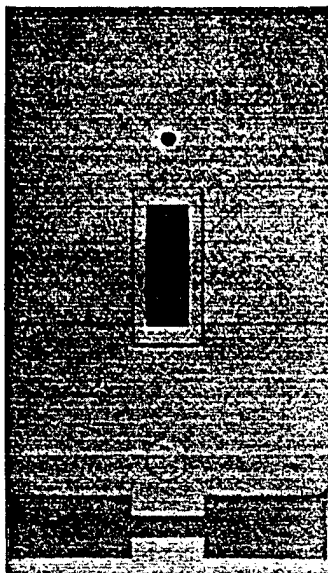
January 1993

Supersedes all previous price lists.

Prices subject to change without notice.

The Most Specified Occupancy Sensor In The Industry

The Only Automatic Light Switch That Looks Like a...



Switch to Everyone!

The model SOM-500-A **Switchomat** can save \$60 per year in a typical office; \$30,000 a year in a 100,000 sq. ft. facility, and is the most specified automatic lighting control in the industry. With its unique, sensitive high density pattern and 20-year, trouble-free life expectancy, the SOM-500-A **Switchomat** is the world's best investment in energy conservation. All UNENCO sensors work with new and existing lighting technologies. And, along with the UNENCO free layout and design service, as with all our products, we offer a 90-day money-back guarantee and up to 5 years warranty.

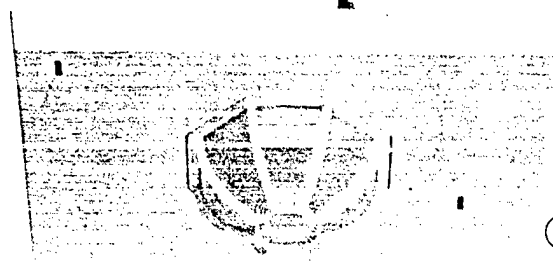
Evaluation Price: \$52.00



Look for the UNENCO lightning bolt for innovative designs and new products!

UNENCO'S NEW and EXCLUSIVE "QUIK-TO-INSTALL"

Tailored  to the needs of the Professional Installer!



PIR-1000-QTI

The "**QUIK-TO-INSTALL**" (**QTI**) is the new industry standard.

With **color-coded**, low voltage connectors and **standard** plenum harness cable lengths the **QTI** is fast and easy to assemble! The PIR-1000-**QTI** occupancy sensor with 360° viewing pattern covers 1,000 square feet. All features of the revolutionary "**QUIK-TO-INSTALL**" are designed to reduce material and labor costs and deliver 100 years of trouble-free performance.

Compatible with new and existing lighting technologies.

Evaluation Price: \$74.50

(for complete **QTI** system)

Risk Free Offer

Take advantage of our UNENCO Equipment Evaluation Period policy.

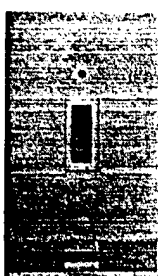
Order any of the products on this page and try them for 30 days, risk free! If you are not fully satisfied with their performance, send them back to us within 30 days and pay nothing.

UNENCO offers a 90 day money-back guarantee and up to 5 years warranty on all our products.

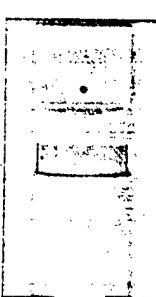
UNENCO has a proven history of quality products, service and performance since 1983.

UNENCO, Inc.
Corporate Headquarters
2555 Nicholson Street
San Leandro, CA 94577-4216
510-352-1802 • FAX: 510-895-5753 • 1-800-227-0452

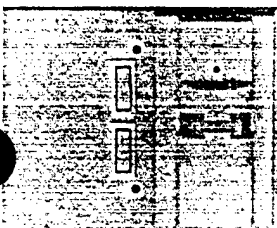
Texas Office:
208-B Industrial Court
P. O. Box 416
Wylie, TX 75098-0416
214-442-5493 • FAX: 214-442-4198 • 1-800-527-7406

Automatic Wall Light Switches *Switchomat*™ Passive Infrared

SOM-500-A

SOM-1000-A
SOM-1000-B

SOM-1000-A-2

**SOM-500-A**

***Switchomat*™** Manual lights off switch with built-in safety neon night light. Occupancy sensor, up to 800 sq. ft. coverage. 120/277 Volt, 1000/1800 Watt switching capacity, fluorescent or incandescent. Immediate activation when entering room.

\$78.00 \$60.00 \$56.00 \$52.00

SOM-1000-A

***Switchomat*™** Occupancy Sensor, up to 1000 sq. ft. coverage. 120/277 Volt, 1000/1800 Watt switching capacity, fluorescent or incandescent, 180° coverage. Immediate activation when entering room.

84.00 64.00 60.00 56.00

SOM-1000-B

***Switchomat*™** Occupancy Sensor, up to 1000 sq. ft. coverage. Single circuit heavy load capacity. Min. 900 Watt to max. 2400 Watt at 120V ballast rating. Min. 1800 Watt to max. 4500 Watt at 277V ballast rating, 180° coverage. Immediate activation when entering room.

97.50 73.00 69.00 65.00

SOM-1000-A-2

***Switchomat*™** 2 switches, 2 circuits, occupancy sensor, up to 1000 sq. ft. coverage. 120/277 Volt, 1000/1800 Watt switching capacity on each circuit (2 wires) 180° coverage. Immediate activation when entering room.

93.00 70.00 66.00 62.00

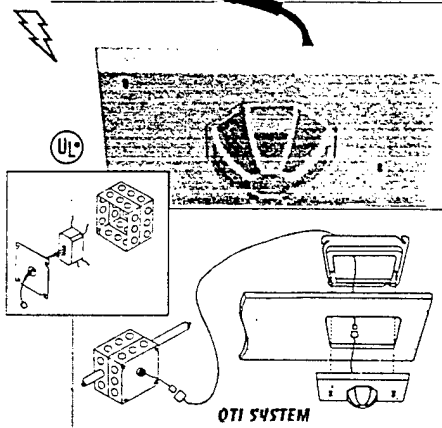
SOM-1200-2-HD

***Switchomat*™** Tailored specifically for classrooms! 2 switches, 2 circuits, immediate activation sensor with up to 4000 sq. ft., 180° coverage. 120/277V, 2000/4000 Watt switching capacity on each circuit (2 wires). Can be mounted in either double or triple gang wall box or plaster ring.

132.00 96.00 92.00 88.00

Ceiling-Mounted Passive Infrared *Conserver*™ Occupancy Sensors

The NEW "Quik-To-Install" (QTI) product line can be ordered separately, in any combination to fit any installation need. The color-coded connectors make assembly of a QTI sensor, QTI Plenum Harness Cables and a QTI Power Pack fast and easy!

**PIR-1000-QTI**

The PIR-1000-QTI, occupancy sensor. Up to 1000 sq. ft. coverage, 360° high density viewing pattern. Color-coded connectors and standard length approved plenum harness cable makes installation *fast and easy*. For use with QTI Power Pack, 20 amp switching capacity. Saves materials and labor!

78.00 60.00 56.00 52.00

PIR-2000-QTI

The PIR-2000-QTI, occupancy sensor. Up to 2000 sq. ft. coverage, 360° high density viewing pattern. Color-coded connectors and standard length approved plenum harness cable makes installation *fast and easy*. For use with QTI Power Pack, 20 amp switching capacity. Saves materials and labor!

112.50 85.00 80.00 75.50

PIR-1000-P

Conserver*™** Self contained occupancy sensor. Up to 1000 sq. ft. coverage. 360° high density viewing pattern. ***Specify voltage when ordering.

93.00 68.00 64.00 62.00

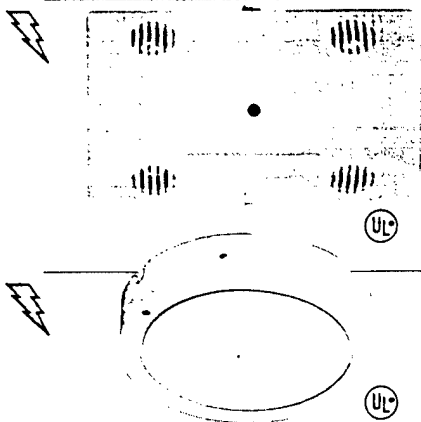
PIR-2000-P

Conserver*™** Self contained occupancy sensor. Up to 2000 sq. ft. coverage. 360° high density viewing pattern. ***Specify voltage when ordering.

127.50 95.00 90.00 85.00

Ceiling-Mounted Ultrasonic *Conserver*™ Occupancy Sensors

All Ceiling-Mounted occupancy sensors can automatically control the On/Off for lighting and HVAC.



C-500-2000-QTI	\$132.00	\$98.00	\$93.00	\$88.50
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Up to 2000 sq. ft. coverage occupancy sensor. Color-coded connectors for easy identification. For use in large open offices. Also suitable for long hallways, 100' x 15'. For use with QTI Power Pack and harness cables.

C-500-1000-QTI	118.00	88.00	83.00	78.50
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Up to 1000 sq. ft. coverage. For use with QTI Power Pack and harness cables.

C-600-R-QTI <i>Conserver</i>™	91.50	69.00	65.00	61.50
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Up to 600 sq. ft. coverage. Equipped with versatile transmitter power slide switch feature for use in small rooms. For use with QTI Power Pack and harness cables.

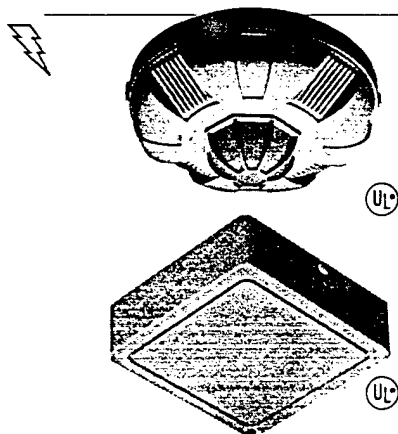
C-500-2000-P <i>Conserver</i>™	148.50	109.00	104.00	99.00
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Self contained, 2000 sq. ft. coverage sensor for multiple unit installations in large open offices. Also suitable for long hallways, 100' x 15'. *Specify voltage when ordering.*

C-500-1000-P <i>Conserver</i>™	143.50	104.00	99.00	94.00
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Self contained up to 1000 sq. ft. sensor.
Specify voltage when ordering.

Combination Ultrasonic and Passive Infrared /Specialty Occupancy Sensors



Combo Sensor QTI

"Combo"

145.00	112.50	104.50	102.00
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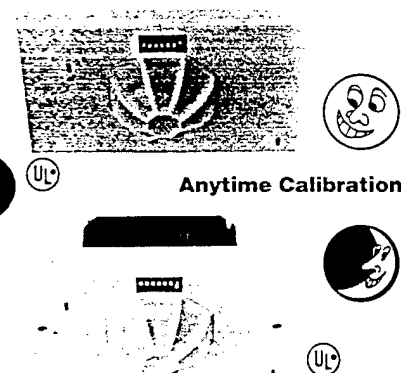
Dual technology occupancy sensor combines both ultrasonic and passive infrared for those specifiers who cannot take any chances. Built in light level sensor for additional savings where feasible. For use in large offices where small motion detection is vital.

HVAC Control *Conserver*™

HMS-1	103.50	78.00	73.00	69.50
--------------	---------------	--------------	--------------	--------------

HVAC control for offices, Hotel/Motel guest rooms up to 400 sq. ft. with built-in fresh air comfort cycle timer.

Photoelectric Controller Automatic Light Level Controls



DAYLIGHT TRACKER DT	63.00	50.00	46.00	42.00
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Measures ambient daylight levels, then automatically activates lights only when lighting is necessary. Factory calibrated foot candle level settings, adjustable with unique "dip switch". No more guesswork.

DAYLIGHT TRACKER DT-D	63.00	50.00	46.00	42.00
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Measures ambient daylight levels, then automatically dims to preset light levels. To be used with I. C. Controllable Electronic Ballast.

DAYLIGHT TRACKER DT-P	78.00	60.00	56.00	52.00
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Self-contained, measures ambient daylight levels. 20 amp switching capacity. *Specify voltage when ordering.*

January 1993

Supersedes all previous price lists
Prices subject to change without notice.

LIST PRICE	1-23 UNITS	24-95 UNITS	96 UNITS and Up.
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Power Switch Packs / Accessories

Model 211-QTI

120V Power/Switch Pack with isolated relay contacts and color-coded connectors. 20 AMP ballast rating. 40 year life expectancy at full load. *Heavy duty power packs for motor loads available upon request.*

\$27.75	\$22.00	\$20.00	\$18.50
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Model 212-QTI

208/240V Power/Switch Pack with isolated relay contacts and color-coded connectors. 20 AMP ballast rating. 40 year life expectancy at full load. *Heavy duty power packs for motor loads available upon request.*

27.75	22.00	20.00	18.50
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Model 213-QTI

277V Power/Switch Pack with isolated relay contacts and color-coded connectors. 20 AMP ballast rating. 40 year life expectancy at full load. *Heavy duty power packs for motor loads available upon request.*

27.75	22.00	20.00	18.50
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QTI 15' Plenum Harness Cable

UL approved plenum harness cable with color-coded connectors. Makes a QTI occupancy sensor and QTI Power Pack installation *fast and easy.*

7.00	5.00	4.50	4.00
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QTI 20' Plenum Harness Cable

UL approved plenum harness cable with color-coded connectors. Makes a QTI occupancy sensor and QTI Power Pack installation *fast and easy.*

7.50	5.50	5.00	4.50
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QTI Splitter S-3M-3F

Used in conjunction with QTI system for multiple sensor, power pack installations.

7.50	6.00	5.50	5.00
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Double Gang Adapter Plate
Model DGAP-500

DGAP-500

Model SOM-500-A Occupancy Sensor accessory.

4.15	2.75	2.75	2.75
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Double Gang Adapter Plate
Model DGAP-1000

DGAP-1000

Model SOM-1000 Occupancy Sensor accessory.

4.15	2.75	2.75	2.75
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RRU

Remote Relay Unit for switching additional circuits or can be used as interface for HVAC controls since contacts are isolated. For use with self-contained "P" version units. 20 AMP switching capacity, 1 to 1.5 HP, 4 wire connection. *Specify voltage when ordering.*

30.00	24.00	22.00	20.00
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TERMS AND CONDITIONS

Payment Terms

2% cash discount if paid 10 days from date of invoice or on any COD shipment. Net 30 days after date of invoice. Sales tax added to California and Texas unless resale number is provided. Minimum order \$100.00. On any order below \$100.00 a \$10.00 service charge for shipping and handling will be added. Prices subject to change without notice. Past due accounts accrue 1.5% charge per month.

Freight

Freight FOB San Leandro, CA, USA.

Hawaii, Puerto Rico and Alaska charges will be added to invoice. Next day delivery UPS red charges will be added to invoice. Second day delivery UPS blue charges will be added to invoice.

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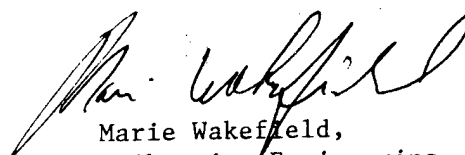


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CHAMPAIGN, ILLINOIS 61826-9005

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